

MATERIALS AND EQUIPMENT

There are many different kinds and brands of materials available for painting in watercolor. You may already have your favorite brushes, palettes, easels, colors, and other miscellaneous equipment. Don't throw anything out just because it isn't suggested here. This section of the book will simply give an overview of the basic materials you'll need. Colors and paints will be discussed in "Handling Color," page 27.

ARTIST: CHARLES REID

Brushes

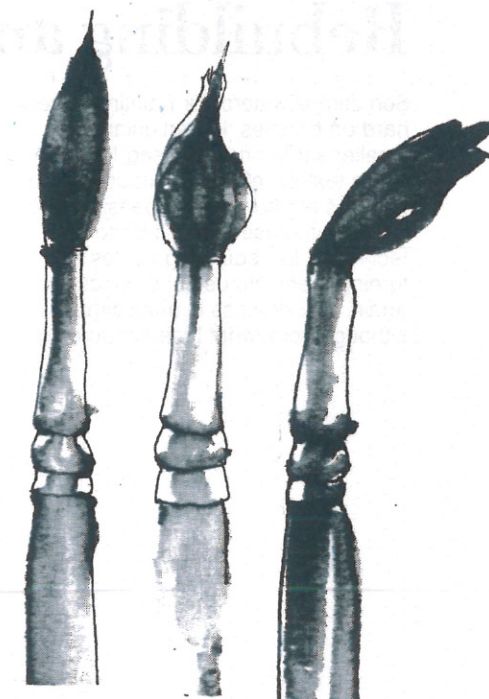
Good watercolor brushes cost a fortune, especially the larger sizes, which are the most useful. Of all the things you'll need for painting in watercolor, brushes are the most important; so you should stint on everything else, if necessary, but buy the best brushes you can afford.

Watercolor brushes are made from red sable (the best brush by far), sabeline (a form of ox hair), ox hair, white nylon, camel hair, squirrel hair, and numerous other hairs. Avoid any of the brushes labeled "camel," "squirrel," etc., unless you like to paint with a mop. They get floppy and lack rigidity. The red sable is the best, but if you can't afford one, the sabeline and ox-hair brushes work quite well. Nylon brushes aren't expensive and are also acceptable.

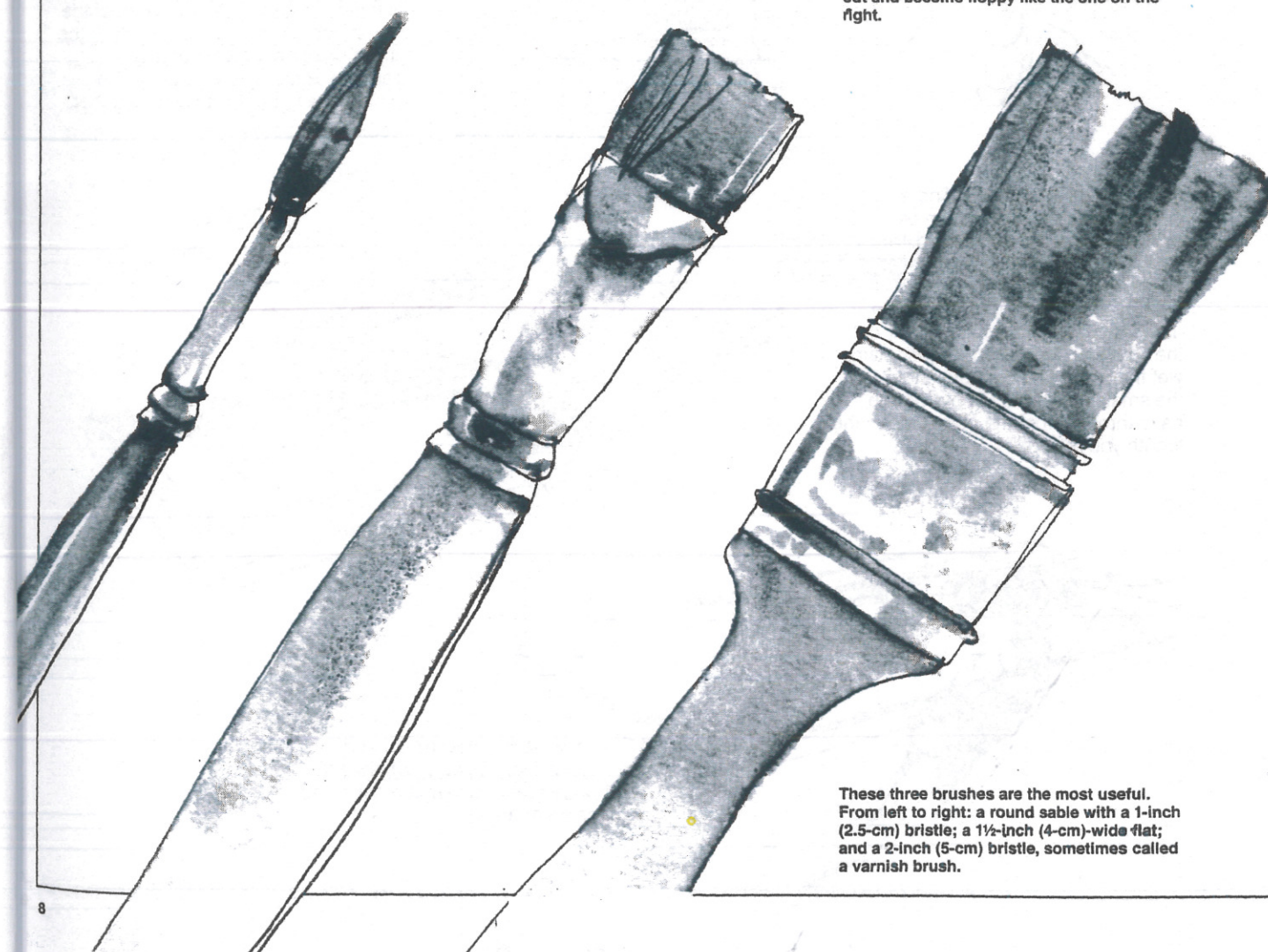
Watercolor brushes come in two shapes: round and flat. Because large rounds are so expensive, get a larger

flat instead. It will cover just as much area as a large round, but for much less money. You can also try the 1½-inch to 2-inch (approximately 4- to 5-cm) commercial bristle brushes that you can find in any hardware store. They work well for large areas.

Different manufacturers number their brushes on different scales, and so you should be careful about ordering without knowing the actual size of a particular brush. The size that is equivalent to Winsor & Newton's no. 8, which is about 1 inch (2.5 cm) long, is considered by some artists to be the best all-round size in a round sable. When you're buying a brush, always remember to test it by dipping it in water to see how it points. It should always point well when dampened. Also, never put your brushes away damp. It's not good for the brushes, and it will cause the handles to flake.



A good brush should always point well when dampened, as does the brush on the left. It shouldn't look like the one in the middle after a stroke. It should bounce back to its original shape. Also, a good brush shouldn't balloon out and become floppy like the one on the right.

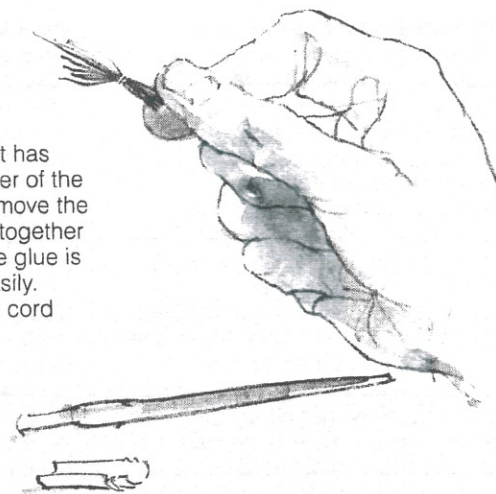


These three brushes are the most useful. From left to right: a round sable with a 1-inch (2.5-cm) bristle; a 1½-inch (4-cm)-wide flat; and a 2-inch (5-cm) bristle, sometimes called a varnish brush.

Rebuilding an Old Brush

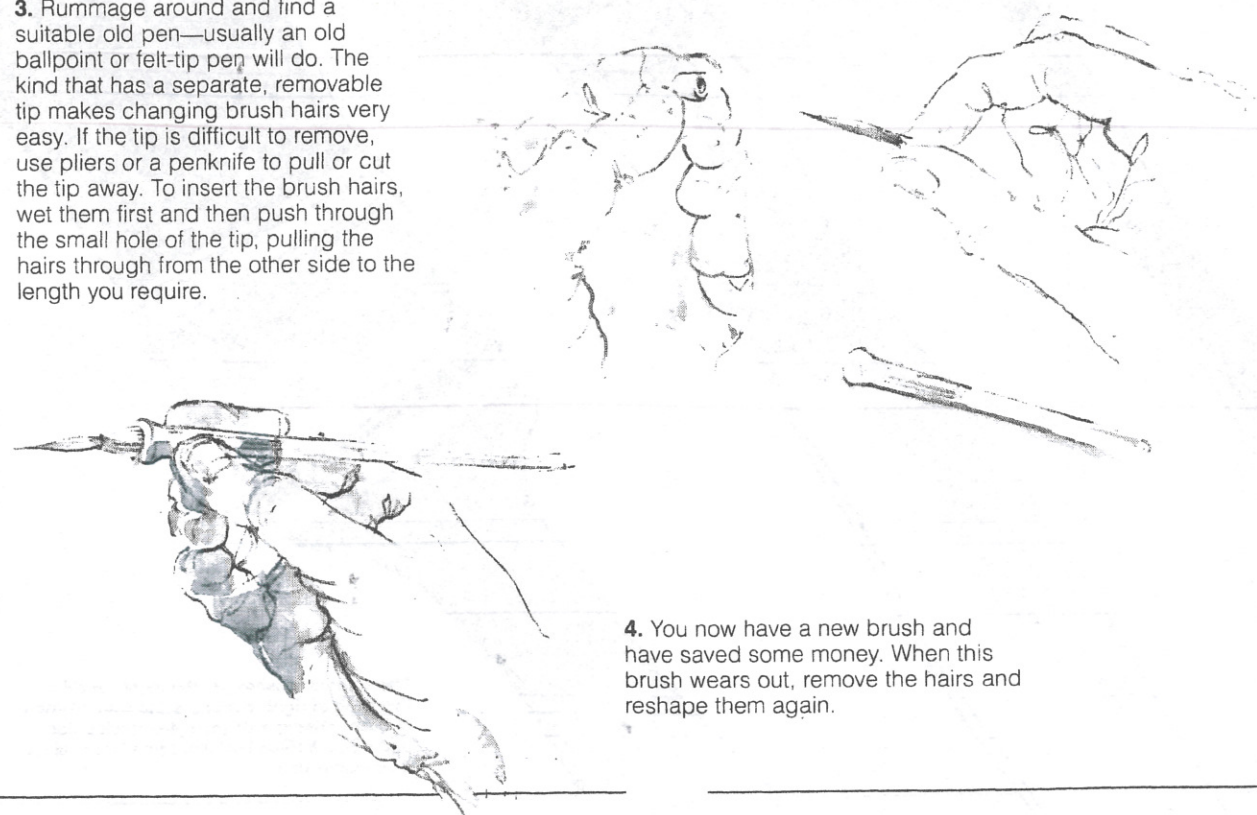
Sometimes watercolor painting is very hard on brushes, in particular the smaller sable brushes used for many of the textural effects. Because sable brushes are now very expensive, you may want to use Richard Bolton's technique for rebuilding sables and turning them into useful brushes again. The process is quite simple, although somewhat time-consuming.

1. Take an old sable brush that has worn out. Cut it down the center of the ferrule with a hacksaw and remove the hairs. These hairs will be tied together and glued at the butt end. The glue is very brittle and will chip off easily. Using a sharp knife, sever the cord holding the hairs together.



2. If the brush is large, the hairs can be separated to make three or four smaller brushes. Improvise a cone from paper and dip the hairs into it. Make sure that the hairs reach the tip of the cone; then draw the ends together with your fingers. Do this without lifting the hairs up from the tip of the cone and losing the point of the new brush. This will give the brush the sharp point needed for detailed painting. Retie with a piece of fine fishing line to hold the hairs together.

3. Rummage around and find a suitable old pen—usually an old ballpoint or felt-tip pen will do. The kind that has a separate, removable tip makes changing brush hairs very easy. If the tip is difficult to remove, use pliers or a penknife to pull or cut the tip away. To insert the brush hairs, wet them first and then push through the small hole of the tip, pulling the hairs through from the other side to the length you require.



4. You now have a new brush and have saved some money. When this brush wears out, remove the hairs and reshape them again.

Paper and Palettes

Watercolor papers are made of different materials and come in various weights and surfaces. The best papers are made from linen. Cotton is also used, but because it seems to have a very absorbent surface, it is less satisfactory than linen. Some papers have "linen" or "cotton" impressed next to the watermark, but if they don't, be sure to ask. With experience, you'll be able to tell just by the feel. Cotton paper feels softer than linen.

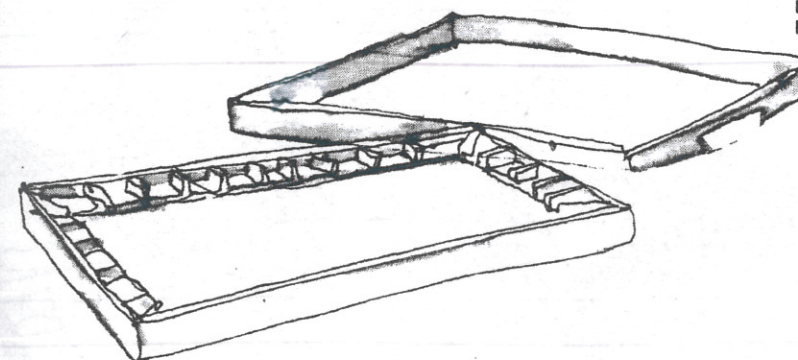
The weight of a paper is gauged by the weight of the whole ream. The weights range from 70 lb. to 400 lb. The 70-lb. type is really too light for anything but relatively small paintings, and the 400-lb. kind is unnecessarily heavy, unless you plan to have a real battle. For half- to full-sheet watercolors, 140-lb. to 300-lb. paper is good. The 300-lb. weight will stand up the best for a larger painting, but your choice really depends on how much punishment you plan to give it.

Watercolor paper is sold in several surfaces: rough, cold-pressed, and hot-pressed. You'll have to decide which surface you like best. The rough-surfaced papers have a great deal of texture. The cold-pressed has a fairly rough surface but probably is the best all-around paper. Many painters find hot-pressed paper too smooth, but with skill, it can be used to good advantage also. It is difficult to

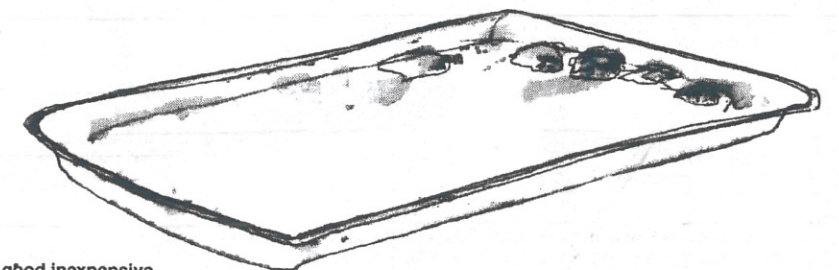
recommend particular paper makers, since paper is such a personal thing. The most important consideration is finding a paper you like that is readily available.

Some papers contain a good deal of sizing and tend to fight the paint. This problem can be reduced by first stretching the paper on a board, securing it with paper tape around the borders, and sponging it down before painting. Heavier papers such as the 300-lb. type can be sponged off in a bathtub without stretching them. In fact, there is really no need to stretch your paper unless you have a sizing problem. It is helpful to stretch the lighter papers to avoid buckling if you're doing a full-sheet painting. It isn't necessary to pay much attention to the right or wrong side of a paper. The right side is the side with the watermark, but both sides of good papers are equally acceptable.

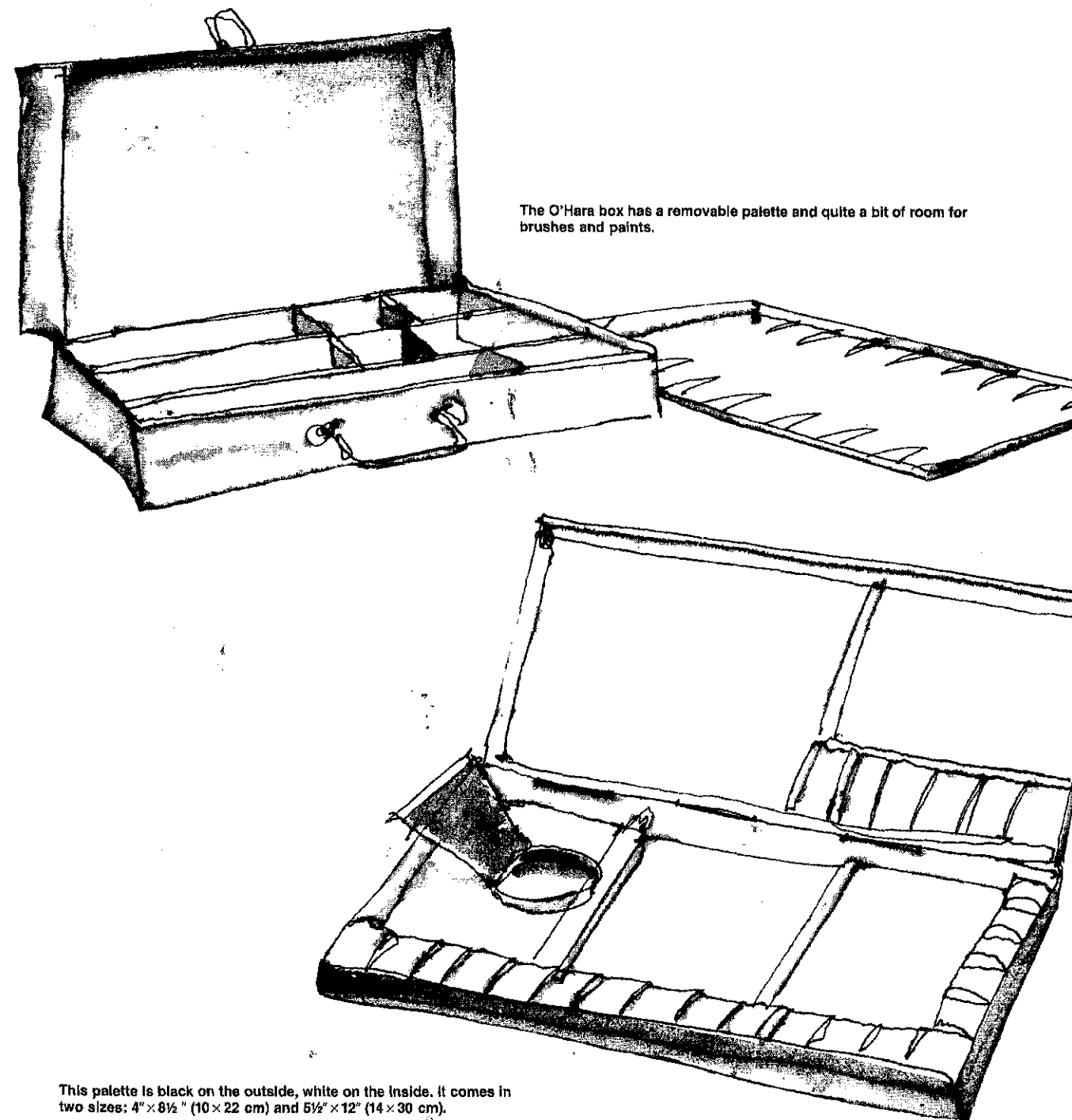
You should avoid cheap metal or plastic palettes and shouldn't rely on dinner plates. A favorite palette is the folding metal type with a little finger hole. Two other recommended covered palettes are the metal O'Hara watercolor box and palette and the heavy-duty plastic John Pike palette. Another very simple and inexpensive palette is a porcelain tray known as a butcher's tray. You can put damp paper towels over your paints to keep them moist.



The John Pike palette is made of heavy plastic and has lots of mixing room. The cover fits snugly and keeps paint damp.



A butcher's tray is a good inexpensive palette with lots of mixing room.



The O'Hara box has a removable palette and quite a bit of room for brushes and paints.

This palette is black on the outside, white on the inside. It comes in two sizes: 4" x 8 1/2" (10 x 22 cm) and 5 1/2" x 12" (14 x 30 cm).

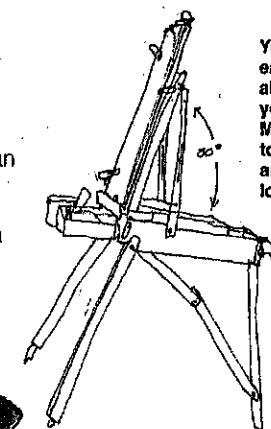
ARTIST: CHARLES REID

Easels

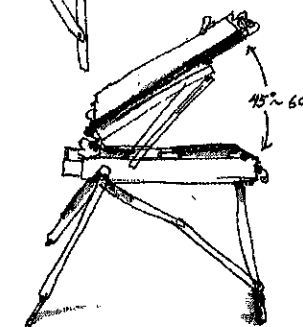
Watercolor easels come in many sizes and forms, and you can feel confident in using any easel that you're able to operate. But when you buy one, insist on putting it up first—the simpler it is to set up, the better. In fact, you can even do without an easel at first—just prop your paper and board on a rock, chair, or table when you paint—until you're sure that watercolor painting is for you. You'll need some fairly firm board to support the paper. You shouldn't buy an official drawing board, since these are usually either too small for a full sheet or too heavy. Any piece of Masonite, 1/2-inch (1.3-cm) plywood, or even Styrofoam board would work fine. You can even have two: one for half sheets and one for full sheets.

You might find—as do many people—that working on a flat surface is best for you, in which case you won't even need an easel. On a horizontal surface, you can apply wet paint

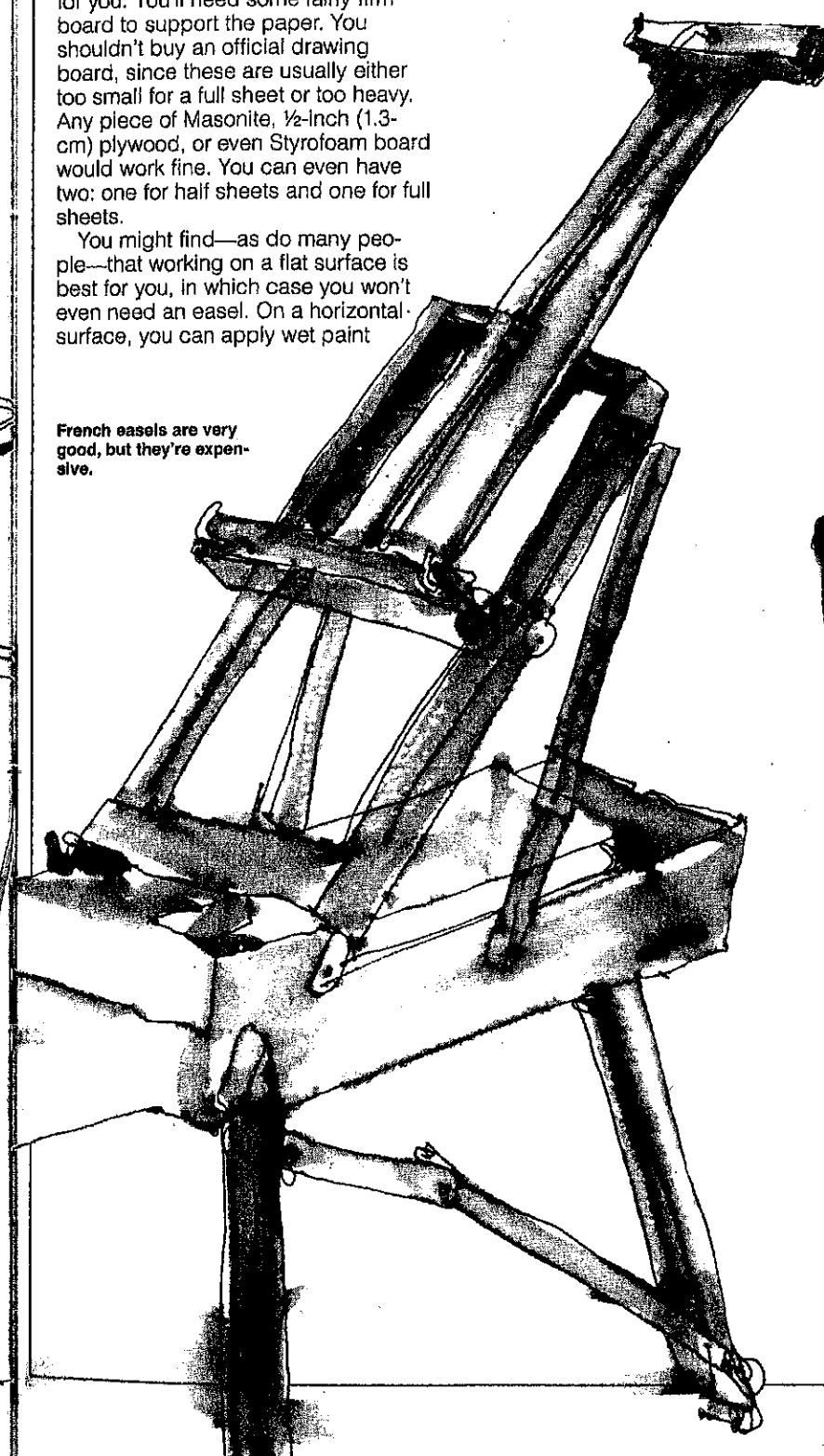
loosely without fear of the wash flowing down the paper, as it can do when the board is tilted. Also, you can decide whether you like standing or sitting best. You should get used to both, especially if you're working in a large group of people in a class or workshop where sitting on the floor may be the best way to see what you're supposed to be seeing.



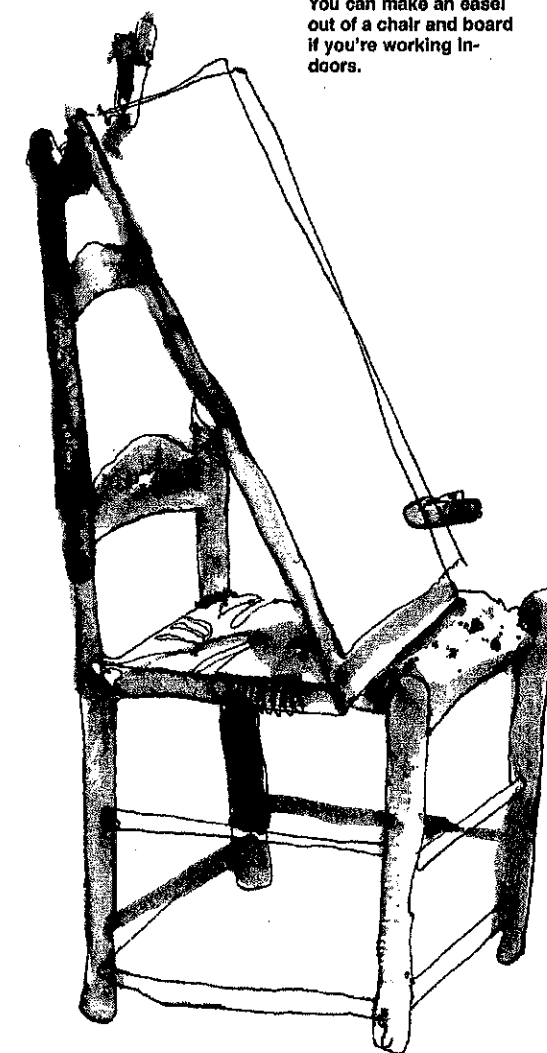
You can use the French easel with your board almost upright (top), but you'll get lots of drips. Most of the time it is best to keep your board at an angle, as shown in the lower drawing.



French easels are very good, but they're expensive.



You can make an easel out of a chair and board if you're working indoors.



Miscellaneous Materials

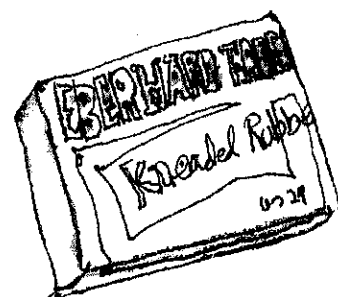
In addition to the materials and equipment already discussed, there are a few other items you'll find useful.

Water Container. Almost anything that doesn't leak can be used. Plastic containers offer numerous possibilities, but an old surplus canteen and cup also work well.

Tissues. You should never paint a watercolor without having a tissue at hand. You can use toilet tissue or paper towels, but it is best to avoid old towels and soiled rags.

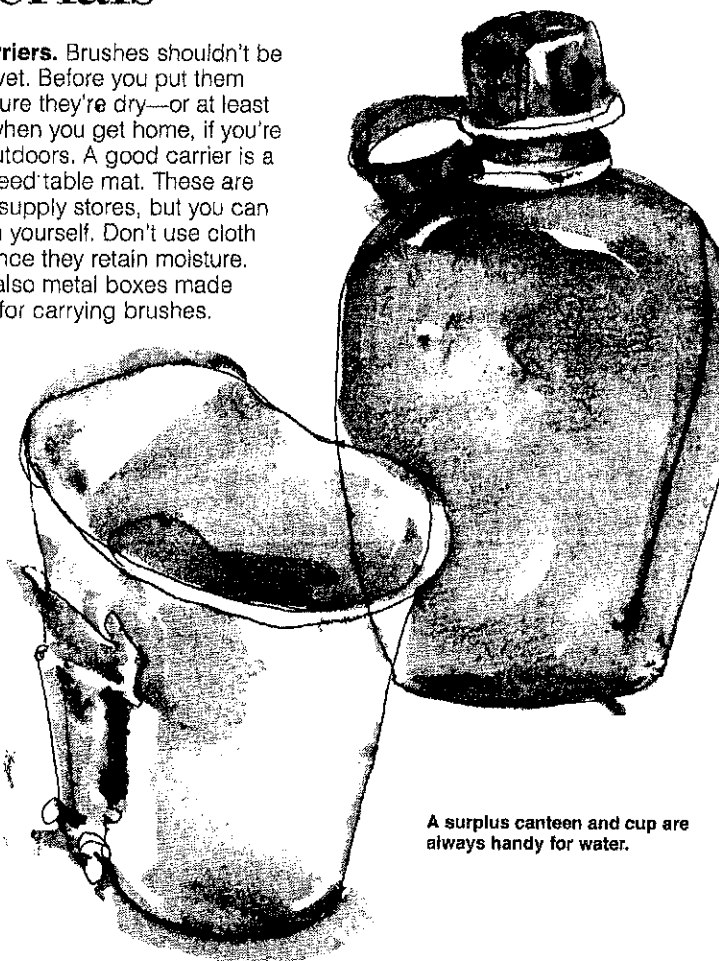
Tape, Thumbtacks, or Clips. Any of these works well, depending on what kind of board you're using.

Erasers. The best eraser is the kneaded rubber eraser made by Eberhard Faber. It's very useful for getting rid of pencil lines, as well as for cleaning soiled and smudged paper. You should avoid hard red and white erasers, as they'll destroy the paper while erasing a line.

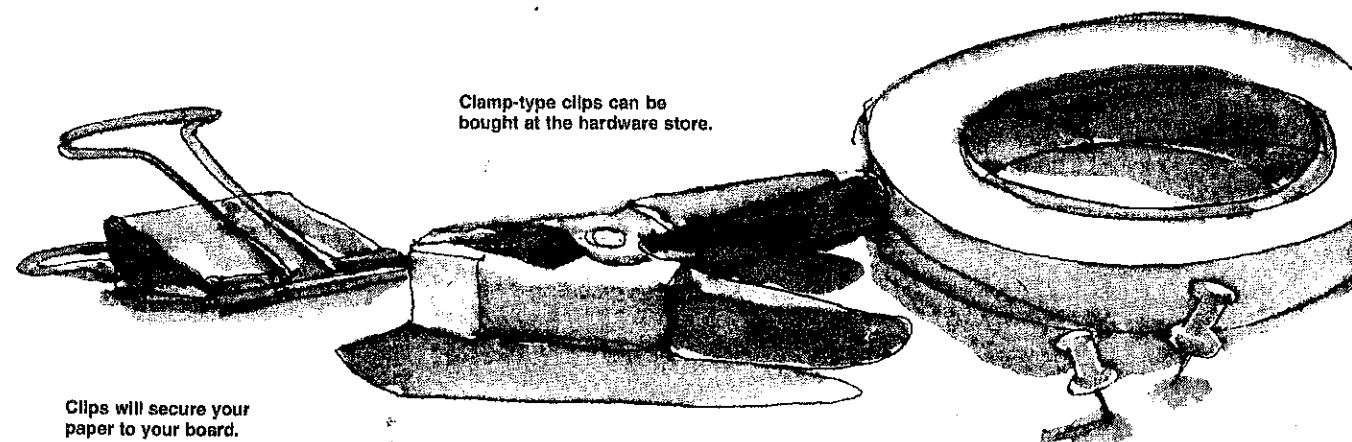


Kneaded rubber erasers are a necessity with pencil drawing.

Brush Carriers. Brushes shouldn't be put away wet. Before you put them away, be sure they're dry—or at least dry them when you get home, if you're painting outdoors. A good carrier is a wicker or reed table mat. These are sold in art-supply stores, but you can make them yourself. Don't use cloth carriers, since they retain moisture. There are also metal boxes made especially for carrying brushes.



A surplus canteen and cup are always handy for water.



Clamp-type clips can be bought at the hardware store.

Clips will secure your paper to your board.

Paper tape is also good for attaching the paper to your board. Pushpins can be used if your board is soft enough.

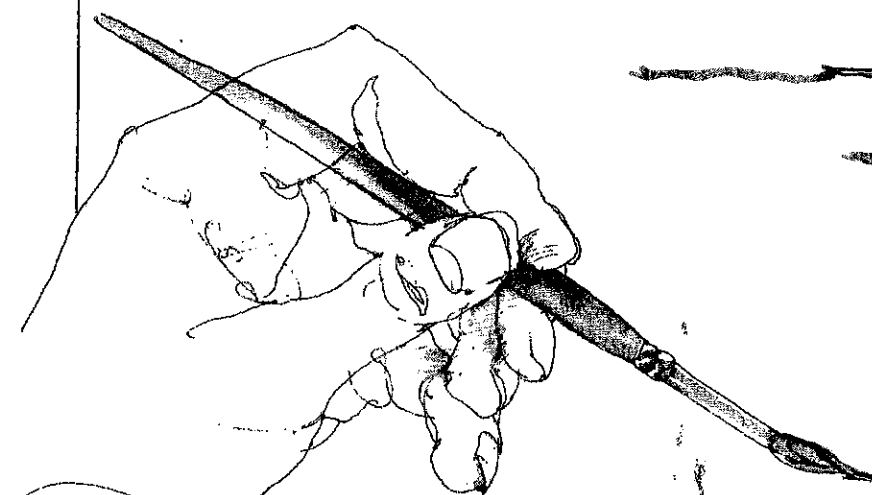
BRUSHWORK

The most important thing to remember in using a watercolor brush is that you're painting a picture, not a wall or a house. You can't just slap the paint on any old way, but generally your strokes should not all go in the same direction, either. You shouldn't smooth out the paint with your brush once it's on the paper. Also, think of more than the tip of the brush when you paint. Use the center section and the base of the brush much of the time. You should use a variety of strokes. *Variety* is the key word in painting pictures. This section suggests ways of holding and using the brush to achieve variety and control in your brushwork.

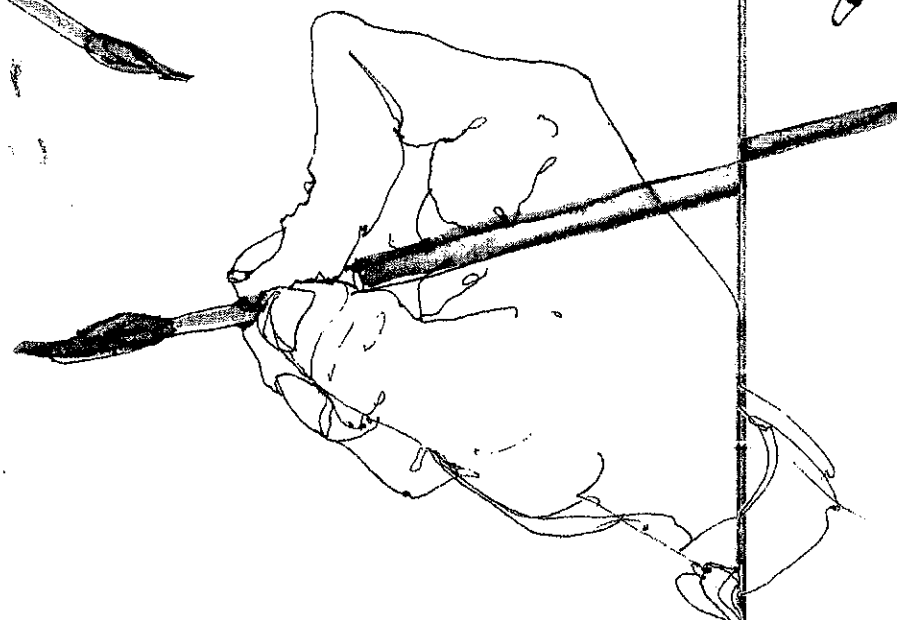
Holding the Brush

Naturally, there are many ways of holding the brush. The sketches on this page show some of the possible ways. Sometimes you can hold your brush like a pencil, but make sure this isn't the way you always hold it.

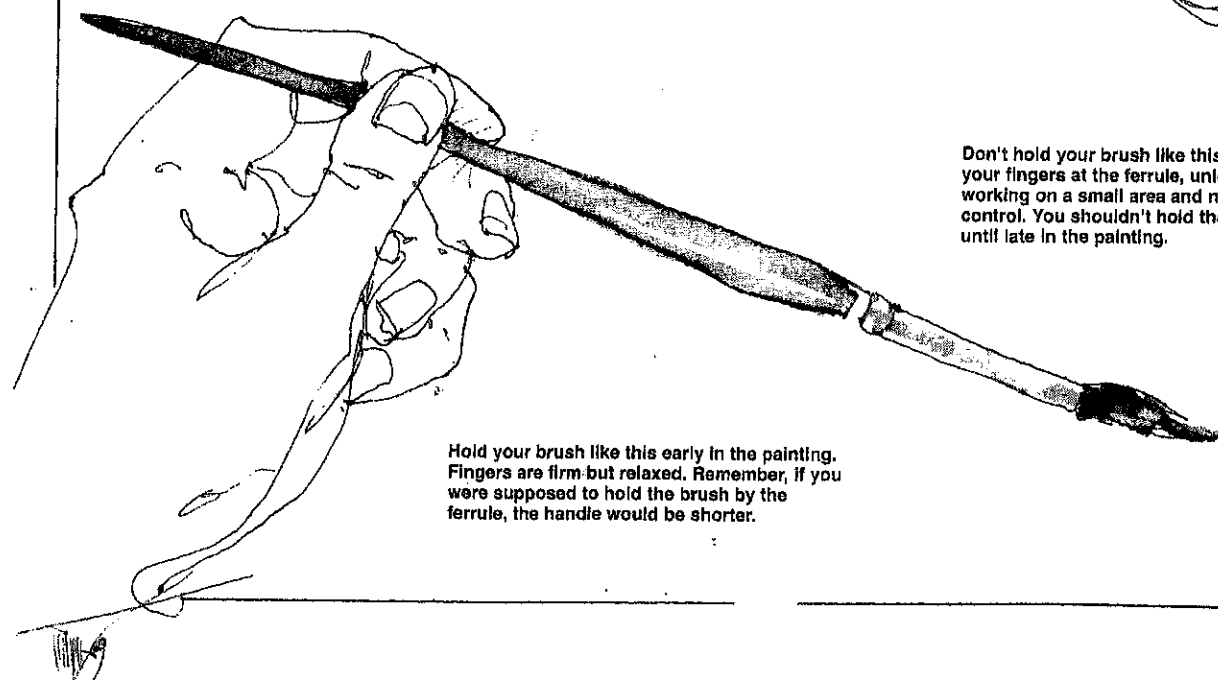
The stroke on the left is probably the most common way of using the brush, but you can also paint with the ferrule (the metal part) pressed very close to the paper, as shown on the right.



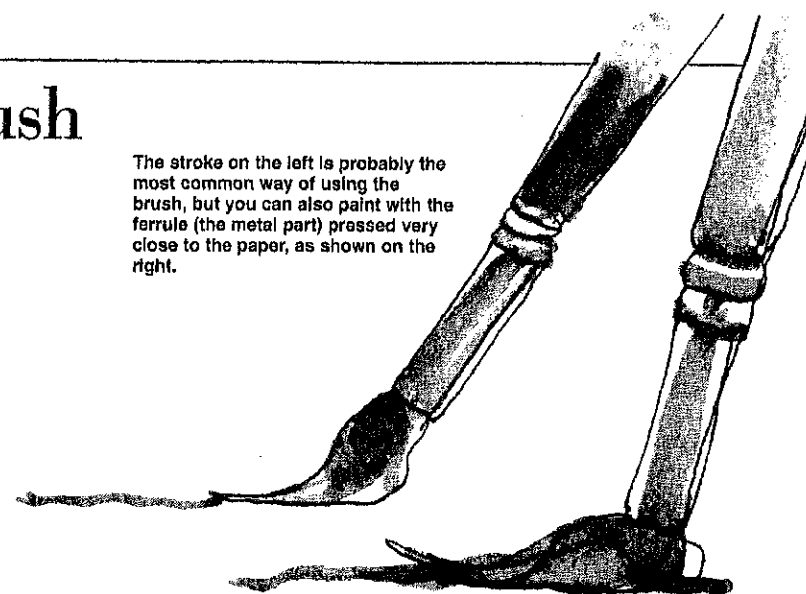
This is a good way to hold the brush: about midpoint, or 1 inch to 1½ inches (2.5 to 4 cm) above the ferrule, with your hand relaxed.



Don't hold your brush like this, that is, with your fingers at the ferrule, unless you're working on a small area and need maximum control. You shouldn't hold the brush like this until late in the painting.



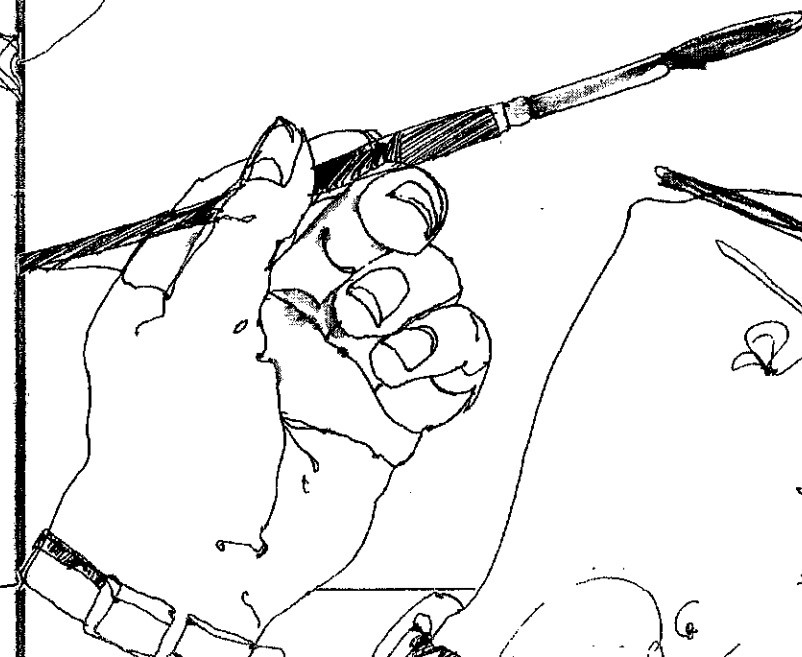
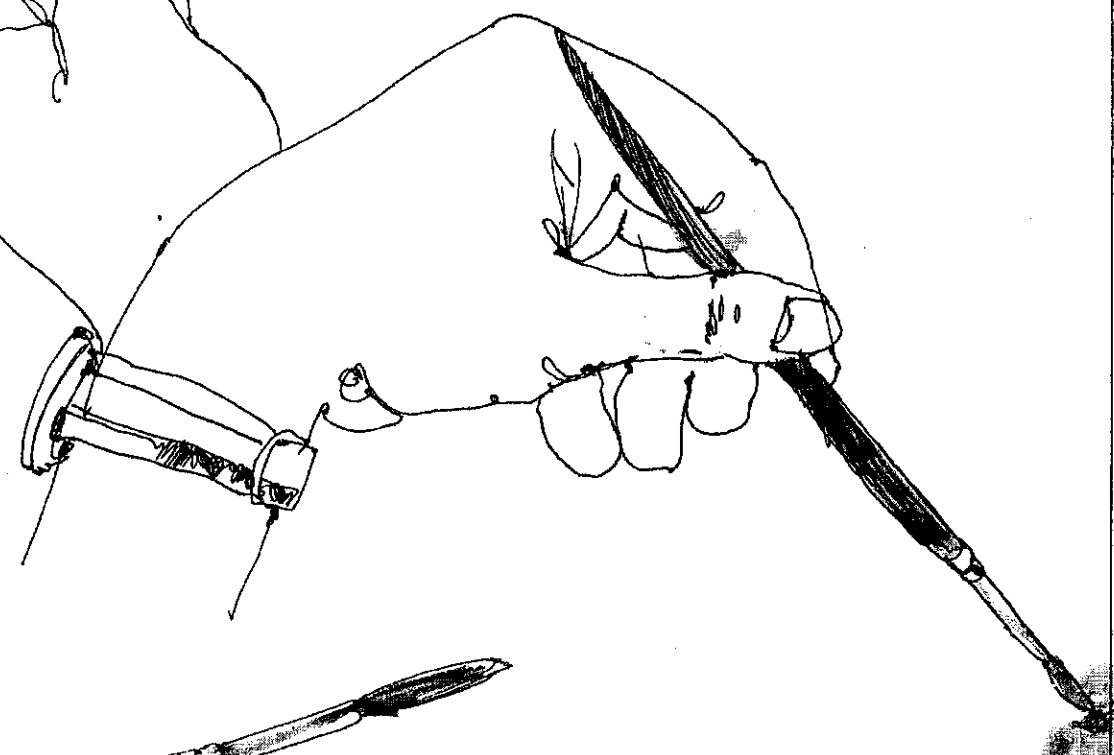
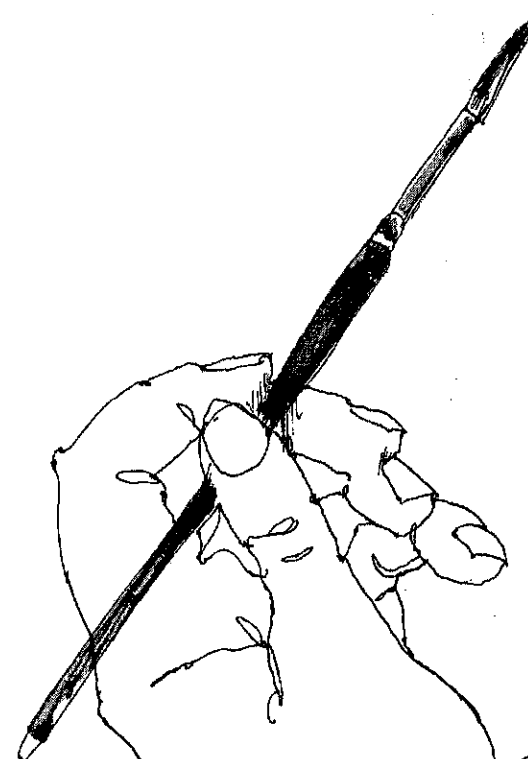
Hold your brush like this early in the painting. Fingers are firm but relaxed. Remember, if you were supposed to hold the brush by the ferrule, the handle would be shorter.



Delivering the Paint

After you've experimented with ways of holding the brush, the next important step will be the process of delivering the paint to the paper. Much of the actual work is done by the water, the paint, and the paper you use, which all play as important a part as the brush. The drawings on this page show two methods that are successful for delivering paint.

Here the wrist is cocked backward and then the tip is dropped forward to touch the paper. Both methods illustrated on this page can be used on wet or dry paper. When they are used on wet paper, the paint and water do much of the work. Below, the handle of the brush is held at right angles to the hand. The wrist is rolled, and the brush is brought down on the paper. Once the brush has been dropped, very little lateral movement occurs. Use the side of the brush, not the point.



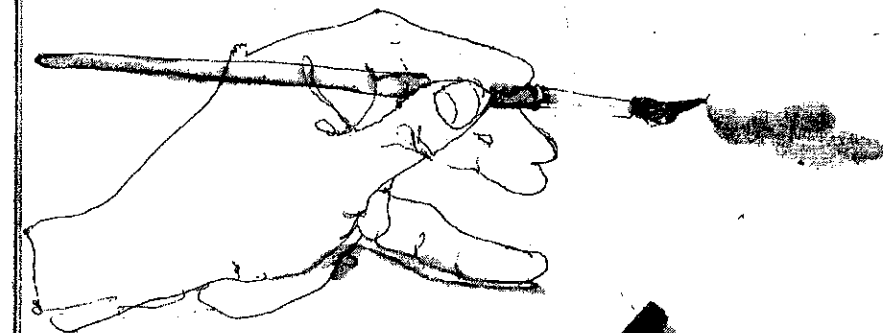
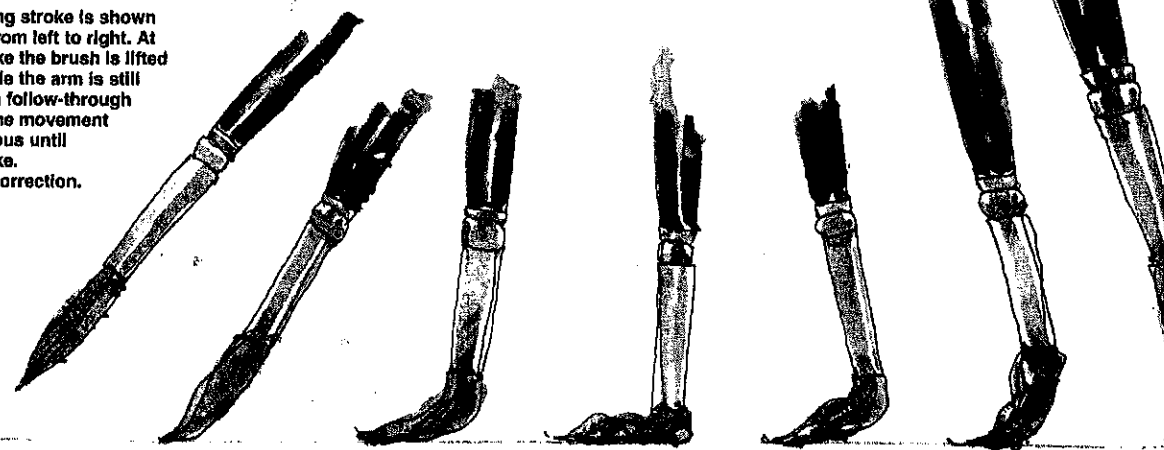
Basic Long and Short Strokes

For both long and short strokes the wrist and lower arm are held firm. Most of the movement comes from the elbow and upper arm. The hand isn't rigid, but there shouldn't be a lot of excess finger movement.

To make either long or short strokes successfully, it's important to have enough paint and water on your brush. So if you're in doubt, try some practice strokes first to make sure your paint and water are all right. The drawings on this page show the procedure for making long strokes, and those on the opposite page illustrate short strokes.

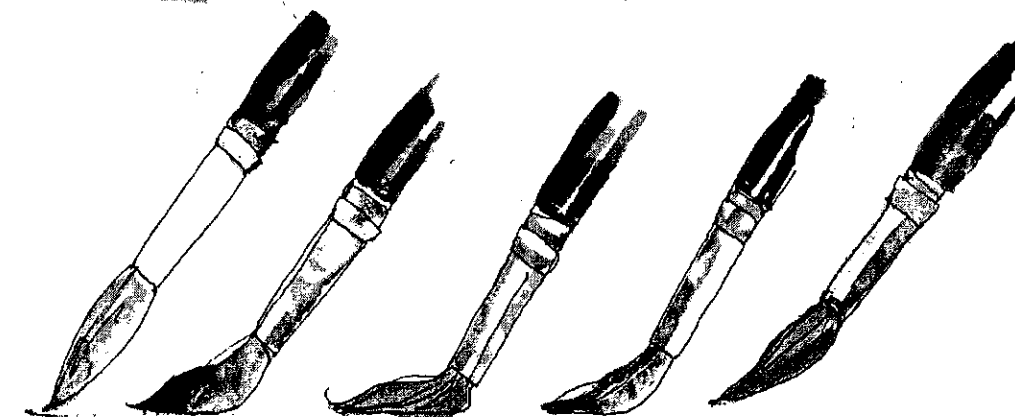
Long strokes show the leaf and petal formation of this slender flower.

The motion of a long stroke is shown here, proceeding from left to right. At the end of the stroke the brush is lifted from the paper while the arm is still moving—just like a follow-through in golf or tennis. The movement should be continuous until the end of the stroke. Don't go back for correction.



Sometimes you can rest your hand on the paper if you want definite control. Use either the side of your hand as your support or the little finger and the side of your hand. For less control, the hand doesn't touch the paper, but the wrist and arm are firm.

The principle of short stroking is the same as that for long stroking. Make the stroke continuous. Don't go back for correction.



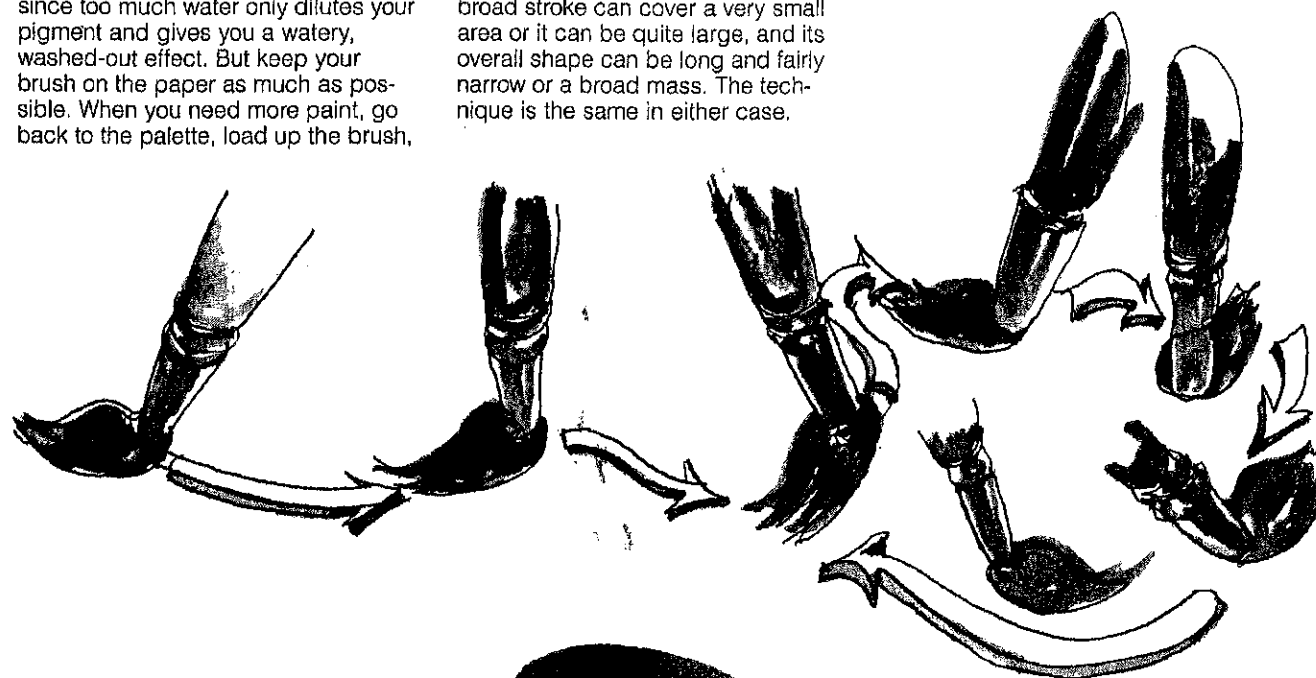
Short strokes can be varied in shape, size, and direction.

Broad Strokes

The principles for broad strokes are the same as those for long and short ones. Keep the wrist firm, with some movement in the hand but most of the action still coming from the upper arm. The brush should be in contact with the paper most of the time, since you're working for a continuous flow. Naturally, you must pick up the brush to get water and paint—not just water, since too much water only dilutes your pigment and gives you a watery, washed-out effect. But keep your brush on the paper as much as possible. When you need more paint, go back to the palette, load up the brush,

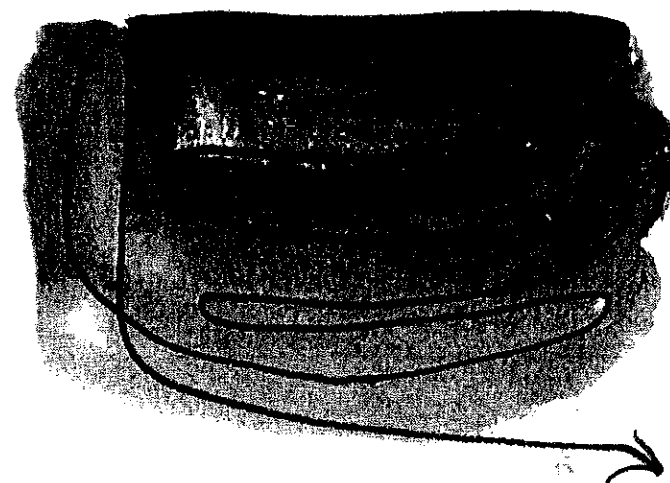
and return to the spot where you left off. Don't go back into the part you've just done to make corrections. If you have a large area to cover, do a series of the kind of blocks shown below, connecting them as you go. Some artists would do the whole area at one time, but this method isn't good if you have a very large area to cover. For that, it is best to work wet-in-wet. A broad stroke can cover a very small area or it can be quite large, and its overall shape can be long and fairly narrow or a broad mass. The technique is the same in either case.

Here the brush is being manipulated in a circular, meandering way, and the handle swivels around the base of the brush.



This is how the stroke would look. The hole left here on the right is just to show the stroke.

Ordinarily the two strokes would be connected just along the edge, as shown in the middle, but not at the center of the top stroke.

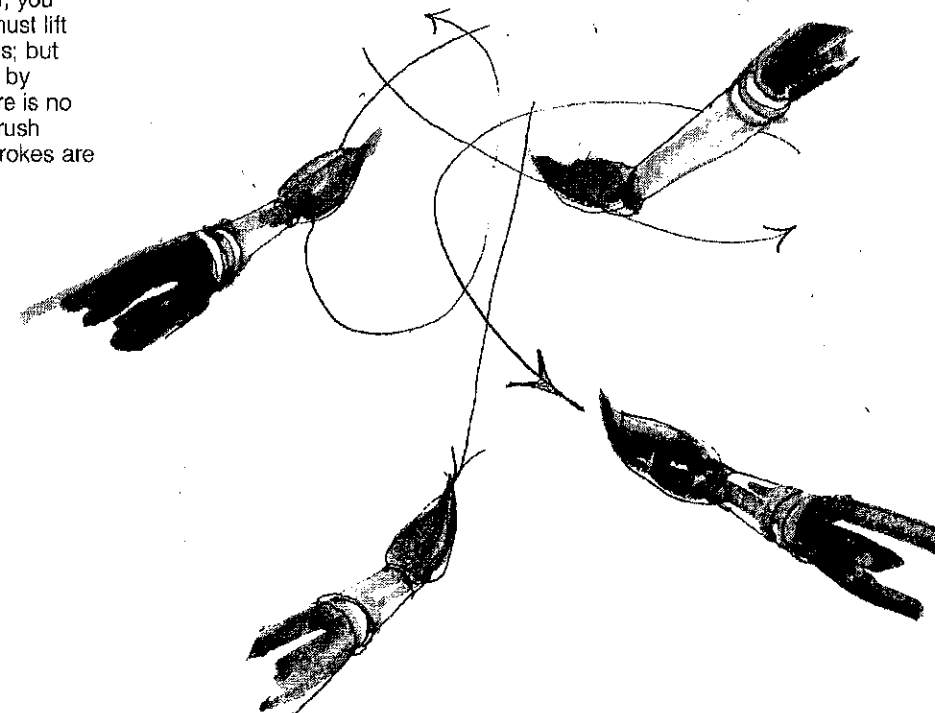


Here is a completed stroke, which starts at the top.

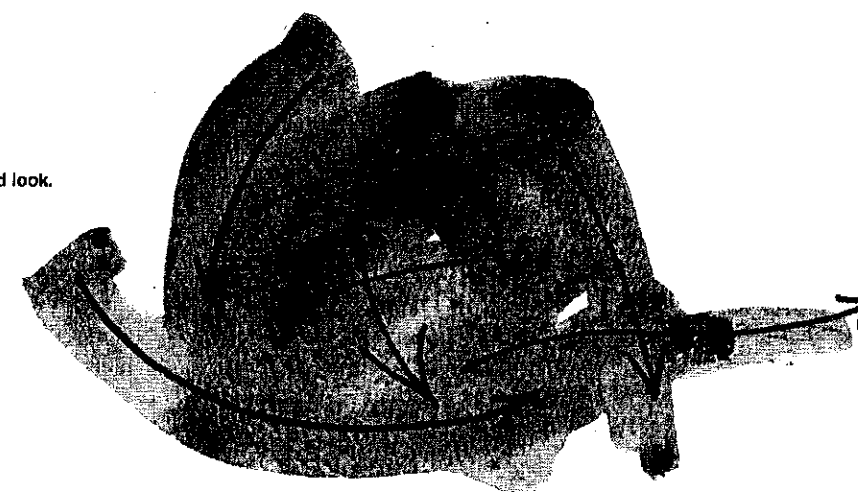
Connecting Strokes

Though it is recommended that you keep your brush on the paper, you can't always do this, as you must lift the brush to make new strokes; but work toward keeping the flow by connecting your strokes. There is no particular direction that the brush should take, so long as the strokes are not all the same.

The brush might make this many directional changes in a single area.



This is the way the actual wash would look.



If the strokes were not combined, they would look something like this.

Making Different Kinds of Strokes

The illustrations on these pages show some of the strokes that can be made with a watercolor brush. Practice making different kinds of strokes so that you will have greater control over your brushwork—as well as a greater variety of strokes at your command.



A wide variety of shapes can be produced, from delicate lines to heavy, broad statements.



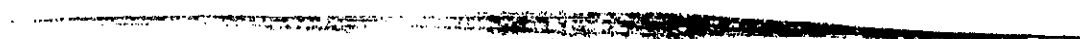
The dragged stroke is made by using a brush starved of water.



Scrubbing the brush on its side creates a stroke with a broken line and texture.



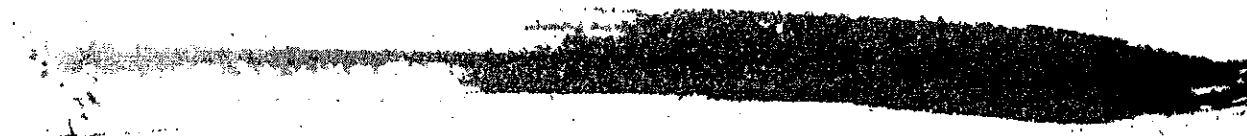
Here, the brush has been scraped upward on its side. This technique can be used for rendering clumps of grass.



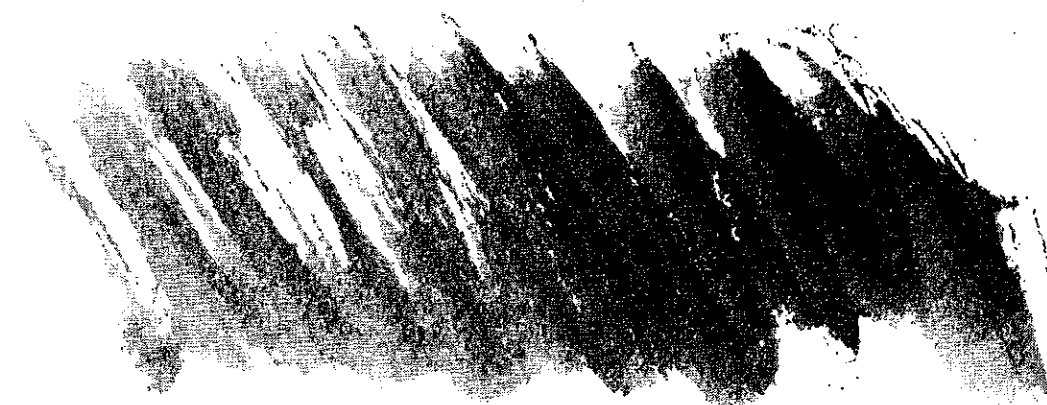
A fine-line stroke can be created by using the natural, fine-tipped shape of the brush.



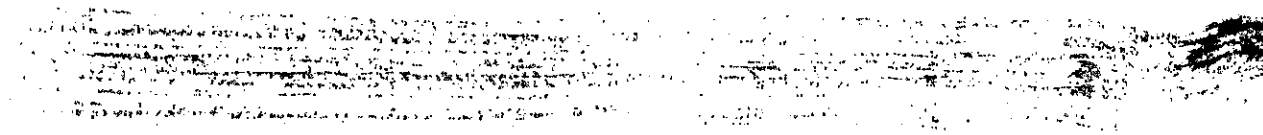
The curved, shapely stroke uses the brush's natural flexibility.



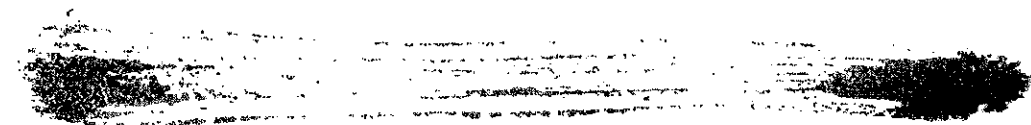
The quick brush stroke, with the brush running out of paint, could be the start of a piece of wood.



Textural effects such as grass can be made by scrubbing the brush over the paper.



The starved brush dragged swiftly across the paper makes another very useful stroke. This could be the grain effect in a piece of wood.



This drybrush effect was made by dragging the brush longways and pressing hard into the paper at the end of the stroke.



Rolling the brush on its side produces this irregular pattern.



This smooth, linear stroke goes from light pressure to heavy pressure in the center and back to light pressure.



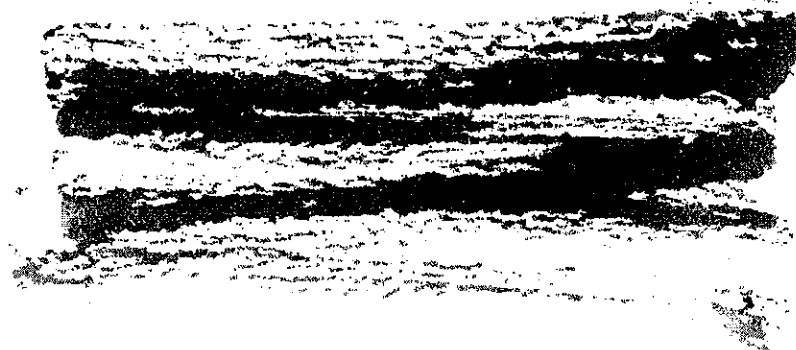
This stroke was made with a heavily loaded brush with ox gall added to the paint. This stroke is frequently used for washes. Ox gall helps to increase paint's ability to spread.



Using the natural shape of a pointed brush, and working from right to left, this stroke moves from light to heavy pressure.



Working again from right to left, this stroke moves from heavy to light pressure.



This textural effect, produced by scrubbing backward and forward, uses the roughness of the paper.

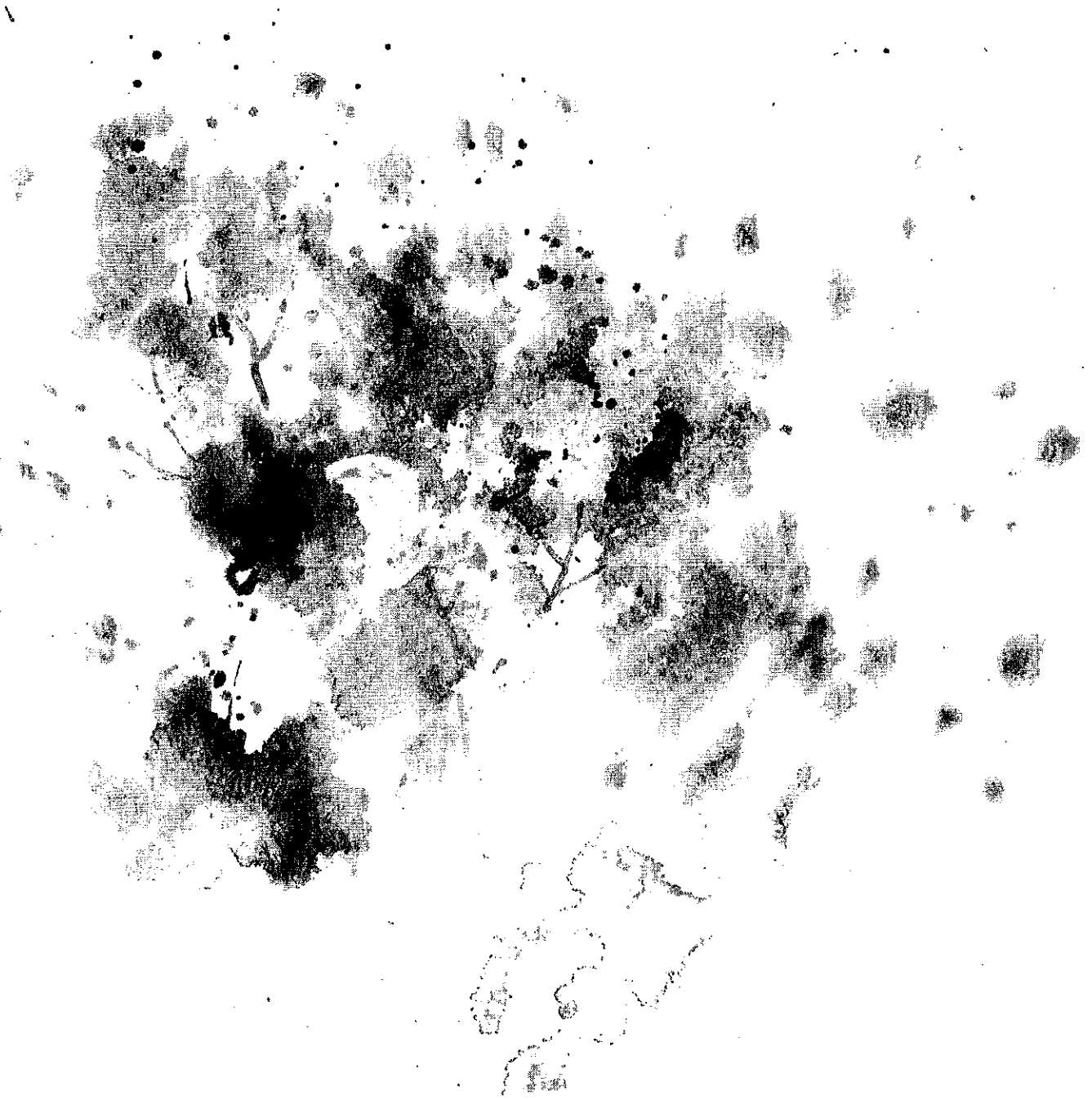
Working Wet-in-Wet

There are many times when paint *shouldn't* be stroked onto the paper, and wet-in-wet is one of these times. But wet-in-wet shouldn't be thought of as a unique approach in watercolor painting. It is watercolor painting. It is also important to realize that wet-in-wet is not just dampening a large area with clear water and then dropping in color. Actually, you should be using wet-in-wet any time you go back into any wash, and you should never correct a stroke without using this technique. To correct a wet wash, it's

necessary to have new pigment on the brush—not just plain water, which will dilute and muddy the paint already down. When working wet-in-wet, use the tip of the brush rather than the side, but there should be no real stroking. The work should be done by the paper, the water, and the paint.

The longer you can keep a painting wet-looking, the better. When a painting starts to look dry and scratchy, you're in trouble. Some artists soak their paper completely before painting, but for the drawing here, artist

Charles Reid only dampened the surface with clear water. He then dropped paint onto the damp paper with the tip of his brush. He also used some spatter work by filling his brush from the palette and then knocking the brush against the forefinger of his free hand. While the washes were still wet, he lifted out lights with a tissue. As the paper dried, he sketched in stems and small details, but he did so before the paper was completely dry in order to keep the wet look. It's important not to make such details too dark.



HANDLING COLOR

No other element of design is as exciting or as confusing as color. This section explains how pigments can be selected and organized in a logical and systematic way, and how they can be combined to produce the widest range of hues and consistencies. It covers selecting a basic palette of colors, understanding how different types of pigments behave, and mixing the primary hues of each pigment group to produce an endless variety of hues. Special attention is given to mixing greens—a necessity for every landscape painter—and to the problems of using grays and neutrals without producing “mud.” Once you understand how and why color behaves as it does, you will be able to use it more skillfully as an expressive element in your painting.

ARTIST: CHRISTOPHER SCHINK

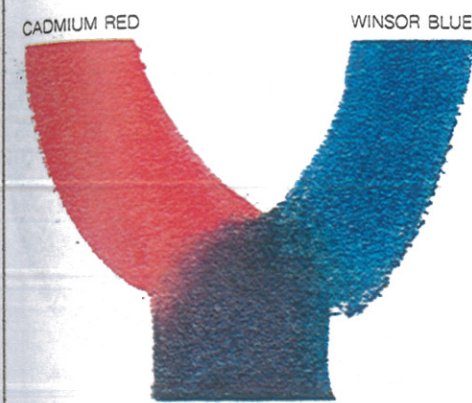
Selecting a Basic Palette

The basic palette suggested here is a selected group of pigments that will be useful to every painter. Each was chosen for its hue, permanence, and pigment consistency to provide the greatest range of color-mixing possibilities.

PRIMARIES

Primaries are those hues (red, yellow, and blue) that cannot be made by combining

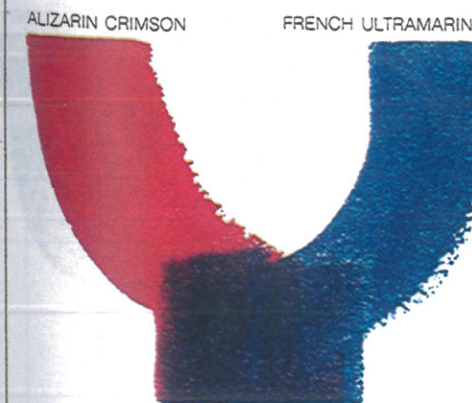
other hues. A perfect primary, by definition, would be one that contained neither of the other two primaries. Because there are no true or perfect primaries available in pigment form, for a full range of color mixing it is necessary to include, at the very least, the two pigments that are the closest on each side to the true primary. For example, there are a number of reds available to watercolorists, but no true red. They all contain either a small amount of yellow (cadmium red, Winsor red) or blue (rose madder genuine, alizarin crimson) or both (Indian red). In order to mix a full range of secondaries containing red, it is necessary to include both a yellow-red and a blue-red.



The “wrong” primaries make a neutral secondary.



Combining complements produces a neutral.



The “right” primaries make an intense secondary.

SECONDARIES

Secondary hues are produced by combining two different primaries, and most secondary hues can be attained by mixing the primaries listed in this basic palette. However, a few secondary hues are included in this palette (cadmium orange, viridian, Winsor green) because they possess an intensity or pigment consistency impossible to duplicate with primary combinations.

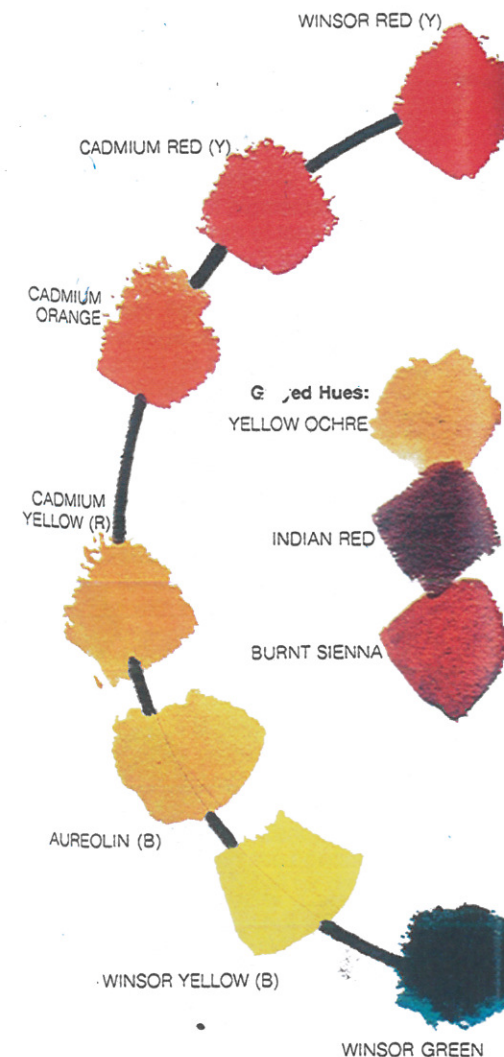
Selecting the Right Primary.

To mix a secondary hue—say, purple—you combine two primaries, red and blue. But you must choose these primaries with care because not every red and blue on your palette will make an intense purple. For example, when cadmium red is combined with Winsor blue, the resulting mixture is not an intense secondary but a gray, neutral hue. The explanation for this is simple: both cadmium red and Winsor blue contain some yellow, the complement of purple.

How Complements Work.

Remember: the addition of its complement (the hue exactly opposite on the color wheel) to a hue will gray it, making it less intense. For example, here two complements—a red and a green—have been combined, resulting in an almost totally neutral gray. But you don't have to add a great amount of its complement to neutralize a hue. Even small amounts of a complement will reduce its intensity.

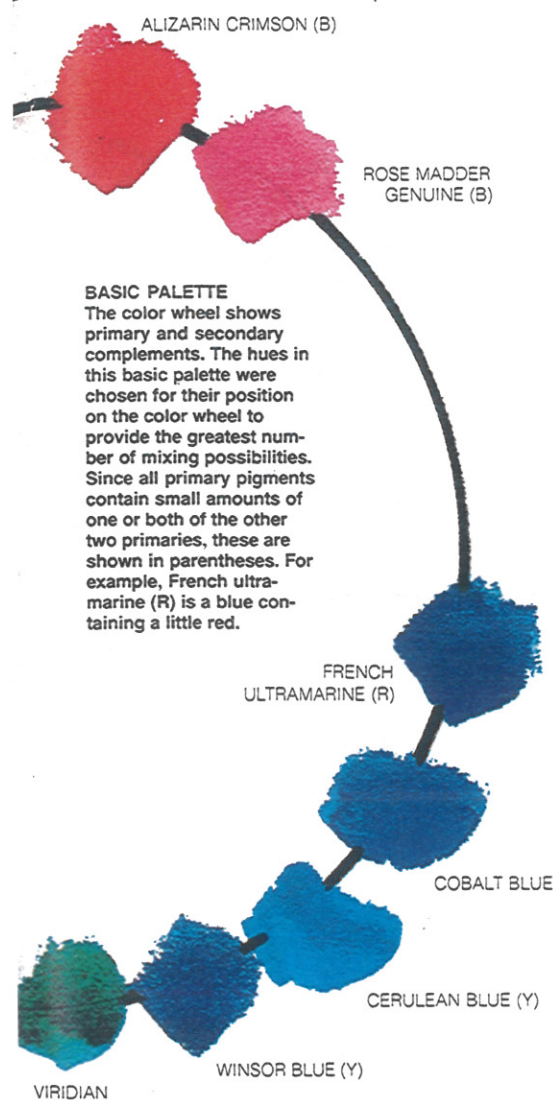
Making Intense Secondaries. To mix an intense secondary, you must select and combine the two prim-



aries closest on the color wheel to the desired hue. For example, here alizarin crimson (a red containing a small amount of blue) and French ultramarine (a blue containing a small amount of red) have been combined to make an intense purple. The reason for the intensity of the mixture is that neither of the primary hues selected contains yellow—the complement of purple.

NEUTRALS

You may have noted the absence of many of the popular neutral hues—such as burnt umber, neutral tint, Payne's gray, and Davy's gray—and modified secondaries and tertiaries—such as sap green and Hooker's green dark. Instead, if you've come to depend on one of these popular commercially mixed hues, you'll discover that it's possible to mix its equivalent easily with this basic palette. For example, here aureolin and alizarin crimson have been combined with a small amount of French ultramarine to produce a warm



dark almost identical in hue, value, and intensity to burnt umber.

Commercially Mixed Neutrals. Neutral hues are made by combining the three primaries (and, in some cases, black) in varying amounts. For example, here a Payne's gray hue was mixed using aureolin, alizarin crimson, French ultramarine, and Winsor blue. Because a ready-mixed gray or neutral already contains all three primaries, any hue added to it will contain the complement of one of its components. It is therefore difficult to modify or vary a commercially mixed hue without some loss of intensity. On the other hand, mixing your own gray gives you more control. Knowing its components, you can modify it to any intensity you wish as you're preparing it.

Mixing Variations of Popular Hues. Sometimes, to avoid graying these commercially premixed hues, painters use them directly from the tube—for example, to paint a sap green field with Hooker's green dark trees under a

Payne's gray sky. But you don't need to bother with all these extra colors. Using the basic palette, it's possible to mix equivalents of these popular hues and a thousand others, varying each to capture the color and weight of your subject or inspiration. For example, here a sap green was made by combining aureolin and Winsor green, with a touch of alizarin crimson to neutralize it.

PERMANENCE

Though the myth persists, there are few artist-grade pigments available today that are truly fugitive. Christopher Schink prefers paints produced by Winsor & Newton, an English firm long recognized as the manufacturers of the highest quality artist's materials. However, many other manufacturers produce pigments of comparable quality in the more common hues—such as phthalo blue and green, viridian, burnt sienna, yellow ochre, alizarin crimson, and so forth. You should feel free to use any pigment the manufacturer recommends as permanent. Remember, no matter how stable its composition, every pigment will suffer some adverse effects when subjected to extremes of light, temperature, or moisture. But under normal conditions, all the pigments listed in the basic palette can be classified as permanent and durable.

Less Durable Pigments.

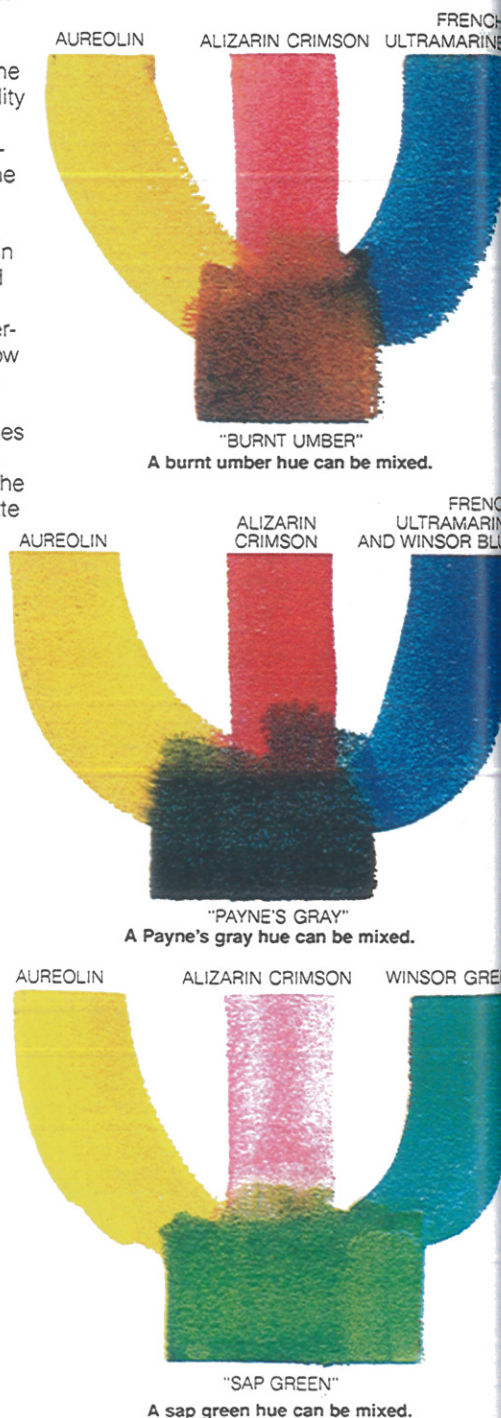
Some pigments popular with watercolorists are less durable and should be avoided or used with caution. They are:

Hooker's green light
sap green
Prussian green
gamboge
crimson lake
violet carmine

Fugitive Pigments. The few remaining fugitive pigments are:

Vandyke brown
chrome yellow
chrome lemon
mauve
carmine
rose carthame

If you wish to go ahead and use these colors anyway, you should be aware that they may fluctuate or fade. But if you want to make certain that your colors remain stable, it is best to mix equivalents for the less durable or fugitive pigments, using the colors in your basic palette.



ARTIST: CHRISTOPHER SCHINK

Understanding Pigment Qualities

TRANSPARENT NONSTAINING PIGMENTS

Transparency is a desirable and attractive characteristic of watercolor. Pigments that impart a clarity and depth of tone are particularly useful and even more so if they are also nonstaining. Nonstaining pigments can be applied in transparent layers (glazes) without sully or staining the other pigments they contact. And because they don't stain the paper, they can be lightened or removed without ill effect. The following pigments are transparent and nonstaining.

Rose Madder Genuine. This delicate, slightly bluish red is made from the madder root. It is extremely transparent, with almost no hiding power. It does not work well for mixing darks or in combination with stains, but it is useful for subtle, transparent glazes.

Aureolin (Cobalt Yellow). This is the only nonstaining, reasonably transparent yellow available. It is cooler than cadmium yellow (leaning more toward green) and, unlike the opaque yellows, it can be used to warm darker hues without significantly affecting their transparency.

Cobalt Blue. Fairly transparent, this middle-value blue is close in hue to a perfect primary. It can be used to mix both greens and violets, but it is too light to make strong darks. Because of its transparency, it can be used in glazes to create the illusion of atmosphere or shadows.

Viridian (Verte Emeraude). This color is a very transparent bluish green. It is an intense, pure secondary color containing more blue than yellow, but no red. It can be used in combination with yellows and reds to make a great variety of natural greens in almost any value or intensity.

Burnt Sienna. This is a fairly transparent, grayed orange. It is the least neutral of the darker earth colors and can be combined with other hues without a significant loss of intensity or transparency. However, it should not be thought of as a substitute for yellow or orange.

The colors represented in this column are transparent nonstaining pigments.



STAINING PIGMENTS

There is a group of pigments with phenomenal strength of tone and tinctorial power that will stain not only the paper, but also any other pigment they contact. For the most part, this is a disadvantage. Once applied, these colors cannot be altered easily or removed. When used as a glaze, they will stain the underlying layers of pigment and destroy their color vibrancy. Transparent stains can be used to achieve deep, intense darks.

Winsor Blue (Phthalocyanine, Thalo, or Monastral Blue). This is a cool (leaning toward yellow), transparent dark blue with enormous power of tone, an intensity rarely seen in nature. It is a strong stain and will affect any other pigments it contacts.

Winsor Red. A slightly warm red (tending toward yellow), this color has only moderate transparency but enormous strength of tone. It is a staining pigment that has a tendency to spread in wet passages. It is too opaque and light in value to work well for darks.

Winsor Yellow. An opaque, slightly greenish yellow, it is very light in value but has enormous intensity. It should be used in the early stages of a painting. Because of its lightness and opacity, it does not work well in middle-value and dark mixtures.

Alizarin Crimson. This color is an exceedingly transparent, slightly bluish red. It has great intensity and a beautiful clarity of tone. It is dark in value, and its transparency and intensity make it an excellent choice for dark mixtures.

Winsor Green (Phthalocyanine, Thalo, or Monastral Green). This very intense, transparent green has strong staining power. It is slightly bluish and appears unnatural in its pure state. For landscape painting, it must be modified with yellows and reds.

The colors in this group have great staining power.



WINSOR RED



WINSOR YELLOW



WINSOR BLUE



ALIZARIN CRIMSON



WINSOR GREEN

OPAQUE SEDIMENTARY PIGMENTS

Opaque colors are dense, nonstaining, sedimentary pigments that obscure much of the paper or underlying pigment. Opaque pigments are effective in conveying weight and density but work less successfully in glazes. Although they are not stains, their weight makes them difficult to remove when dry.

Indian Red. This grayed earth red has enormous hiding power. It can be mixed to make natural browns of great density and weight in the medium-light to middle value range. It is not a stain, but because of its great weight, it is hard to remove when dry.

Cerulean Blue. This is a chalky, slightly greenish blue with strong hiding power. Because of its weight and sedimentary nature, it works well when used in the wet-in-wet method. At full strength, it is only medium light in value and, therefore, not a good choice for darks.

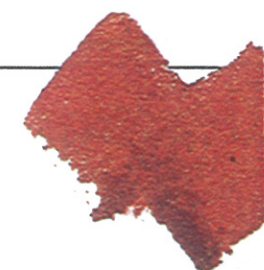
Yellow Ochre. This slightly grayed, warm earth yellow has good hiding power. It is an excellent substitute for cadmium yellow and is used extensively in landscape painting. Because of its opacity, it cannot be used to make darks without a visible loss of their transparency.

Cadmium Orange. An extremely intense true orange, it is an essential secondary because its intensity and purity of pigment cannot be attained by mixing. It possesses strong hiding power and can be used in combination with viridian and Winsor green to make rich greens.

Cadmium Yellow. An intense, warm (leaning toward red) yellow, this color possesses strong hiding power and is best used in the early stages of a painting. Because of its opacity, it cannot be used to warm middle-value or dark hues without a significant loss of their transparency.

Cadmium Red. This is a very intense yellowish red with strong hiding power. Despite its intensity, at full strength it is only a middle-value hue. If preferred, one of the other closely related cadmiums, such as cadmium red deep or scarlet, can be substituted.

French Ultramarine. A warm (leaning toward red), middle-value blue that has fair hiding power, at full strength, it appears deceptively dark. It will lighten when dry, often creating unexpected opacity or chalkiness.



INDIAN RED



CERULEAN BLUE



YELLOW OCHRE



CADMIUM ORANGE



CADMIUM RED



CADMIUM YELLOW



FRENCH ULTRAMARINE

These are the opaque sedimentary pigments.

ARTIST: CHRISTOPHER SCHINK

Mixing Variations

You don't need to buy a tube of every new or exotic pigment that comes on the market to have varied and distinguished color in your painting. With practice, you can mix an almost unlimited assortment of hues using just the primary pigments (triads) of each pigment group on the basic

palette to reproduce almost any hue found in nature or in a tube.

The primary pigments in each triad are equally matched in consistency and intensity, and so when they are mixed, one pigment will not overpower another. Also, each triad (nonstaining transparent, opaque, and staining) will

produce hues with distinctly different surface qualities that can be matched to the general characteristics of a subject—light and atmospheric, heavy and dense, or intense and powerful. The examples on these pages illustrate how each triad can be used to mix variations in hue. The ingredients



Mixing tertiaries with the transparent triad.



Making more tertiaries with the transparent triad.



Mixing neutrals with the transparent triad.

have been painted in varying sizes to suggest the approximate proportions of each mixture.

TRANSPARENT NONSTAINING TRIAD MIXTURES

The triad of rose madder genuine, aureolin, and cobalt blue can be mixed to produce the widest variety of intense, transparent light to middle-value hues. Mixing any two of these primaries in unequal amounts makes intense, transparent tertiaries which

can be subtly shifted by increasing the amount of one of the primaries. By varying the proportions of all three primaries, you can also mix many distinctive and subtle grayed hues.

OPAQUE TRIAD MIXTURES

Because of the low intensity of the opaque primary pigments—yellow ochre, cerulean blue, and Indian red—this triad will produce only a limited number of moderately bright hues. However, many of the grayed earthlike

colors made with this triad are useful in landscape painting.

STAINING TRIAD MIXTURES

A fairly large variety of hues can be produced with the staining triad—Winsor yellow, Winsor blue, and Winsor red. And, with the exception of purple hues, mixtures in a full range of intensities can be attained with these pigments, including an assortment of grayed hues.



Creating grayed secondaries with the opaque triad.



Mixing grayed secondaries with the staining triad.



Making neutral hues with the staining triad.

ARTIST: CHRISTOPHER SCHINK

Mixing Greens

The greens found in nature are not made simply with a combination of yellow and blue. Their colors vary enormously, but most contain far more warmth (yellow and red) than many painters realize. By starting with pure green pigment—viridian or Winsor green—and adding varying amounts of primary colors to it, you can mix a full range of greens—from light to dark, warm to cool, intense to neutral—that approximate those seen in nature.

MIXING TRANSPARENT GREENS WITH VIRIDIAN

You'll probably find little use for viridian in its pure state, but it can be warmed with varying amounts of aureolin and rose madder genuine to produce more naturalistic transparent hues. A wide assortment of greens can be made with these three pigments. By varying their proportions, you can produce mixtures that range in hue from a light orangish green to a cool blue-green and in intensities ranging from brilliant to neutral.

Some mixtures will have a glowing transparency that can be used to suggest fresh vegetation or sunlit foliage. Other mixtures can be used to describe darker vegetation or fall foliage. By adding cobalt blue, you can also obtain a wide assortment of transparent violets, oranges, and browns with a naturalistic appearance.

MIXING OPAQUE GREENS WITH VIRIDIAN

Viridian also can be used as the basic ingredient in a large assortment of opaque greens. When combined with any of the warmer opaque pigments on the basic palette, viridian will produce mixtures of great weight and density. Cadmium yellow, yellow ochre, cadmium orange, and cadmium red can be combined with viridian to produce many opaque hues. You can use these greens to describe the density of a lush meadow or field, the weight of foliage on an oak, or the rich, warm hues of an evergreen forest.

MIXING MIDDLE-DARK GREENS WITH VIRIDIAN

A variety of middle-dark greens, both transparent and opaque, can be made by combining viridian with any of the orange-reds or reds on the basic palette. Indian red, burnt sienna, and cadmium red, to name only three, can be added to viridian. A small amount of aureolin can be added as well, to increase warmth and intensity. Varying



Mixing transparent greens with viridian (shown on the left as it comes from the tube) and decreasing amounts of aureolin.



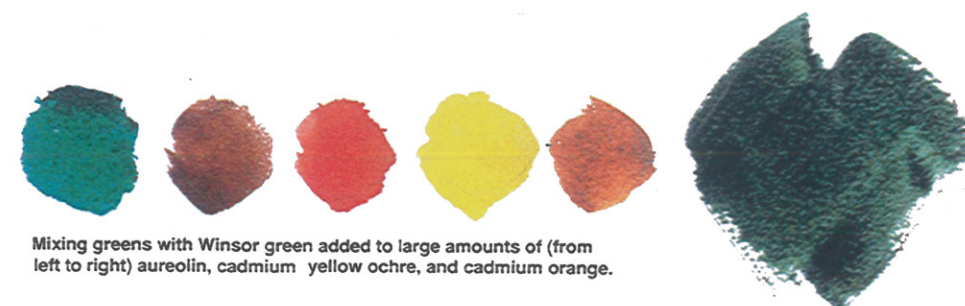
Making more transparent greens by combining viridian with aureolin and a small amount of rose madder genuine.



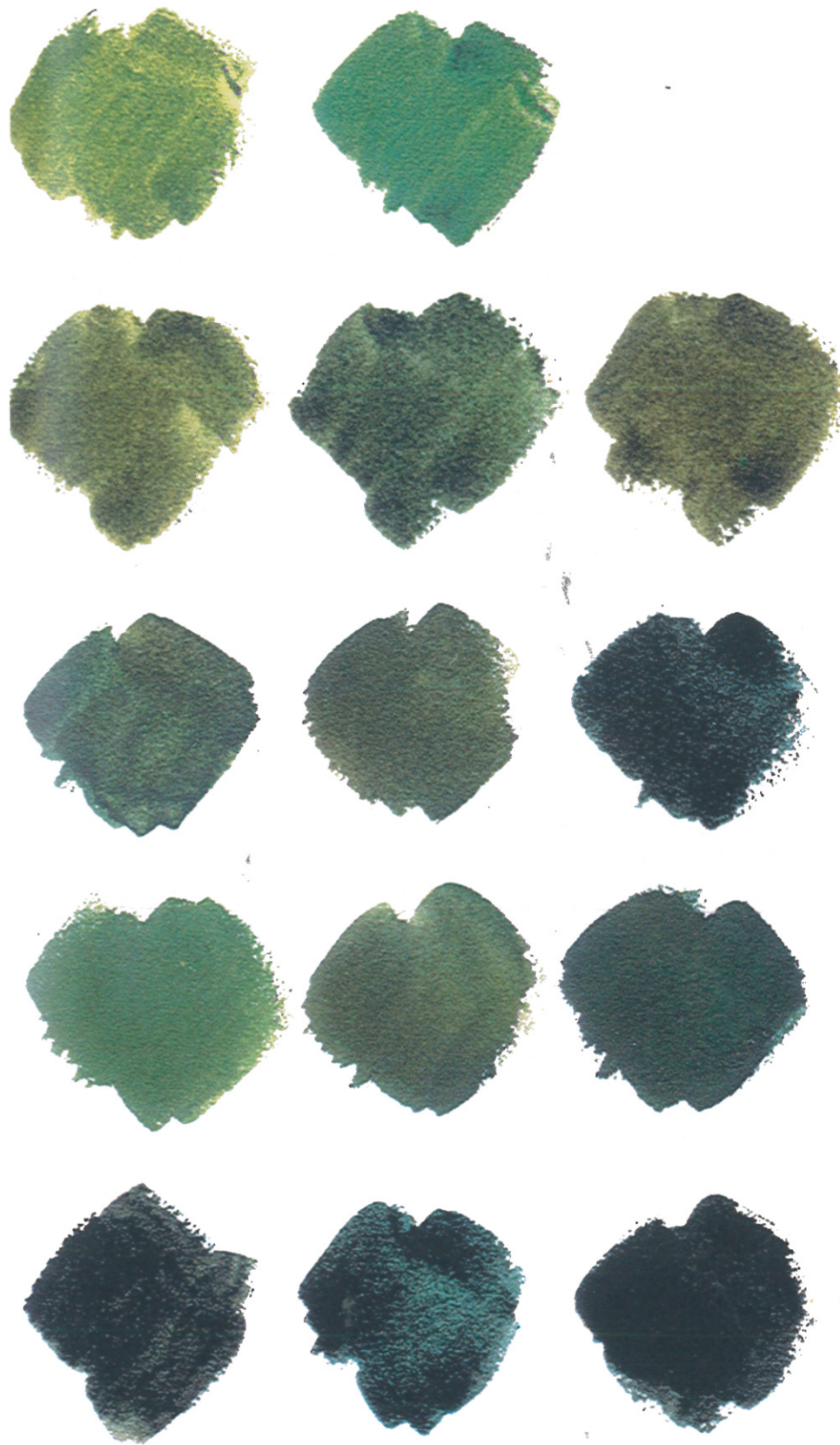
Viridian combined with cadmium yellow, yellow ochre, cadmium orange, and cadmium red to produce four different opaque hues.



Creating middle-dark greens by adding Indian red, burnt sienna, and cadmium red to viridian.



Mixing greens with Winsor green added to large amounts of (from left to right) aureolin, cadmium yellow ochre, and cadmium orange.



the proportions of viridian and cadmium red will enable you to create cool and warm greens. You can use variations of these combinations for darker foliage, trees in shadow, or the warm interior of a woods.

MIXING GREENS WITH WINSOR GREEN

Winsor green is a cold, dark, transparent green with enormous intensity. For realistic landscape painting, it can be modified by adding large amounts of any of the warmer pigments on the basic palette. A small amount of Winsor green can be combined with a large amount of aureolin, cadmium yellow, yellow ochre, or cadmium orange to give you light-middle and middle-value greens. You can use greens such as these to describe the intensity of lush spring foliage or a sunlit meadow or marsh, but be sure they're compatible in intensity and surface quality with the rest of your painting.

ARTIST: CHRISTOPHER SCHINK

Mixing Grays

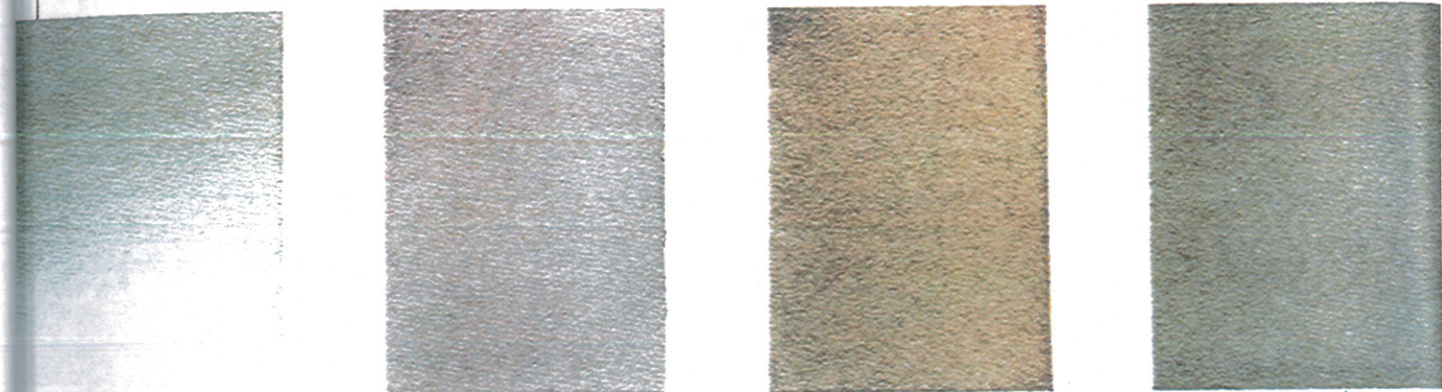
While mixing variations in hue, you may have discovered that an attractive and varied assortment of gray and neutral hues can be made by combining nearly equal amounts of all three primaries in a triad. Entirely different hues could be produced by varying the proportions of any of these mixtures. Each triad—nonstaining transparent, opaque, and staining—will produce mixtures with distinctly different pigment qualities that can be matched to the surface quality of a

subject or be used as a design element in a painting to accentuate the intensity of brighter hues.

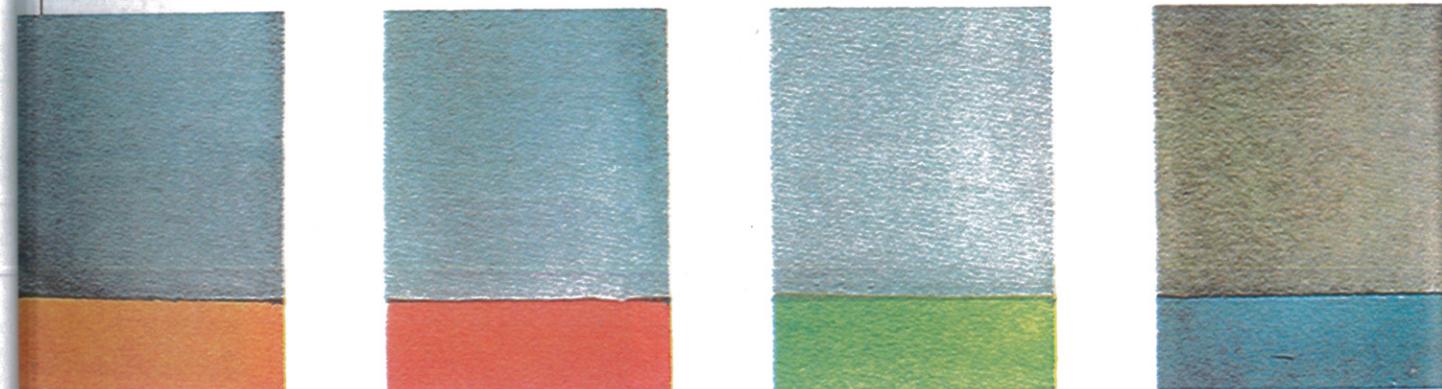
The exact hue of a gray and its effect in a painting are difficult to judge on the palette but must be seen in relation to other colors on the painting. Small areas of intense complementary color have been added in these examples to illustrate how neutral hues—mixtures you might normally discard as muddy can be used to accentuate brighter hues.

MIXING NEUTRALS WITH THE NONSTAINING TRIAD

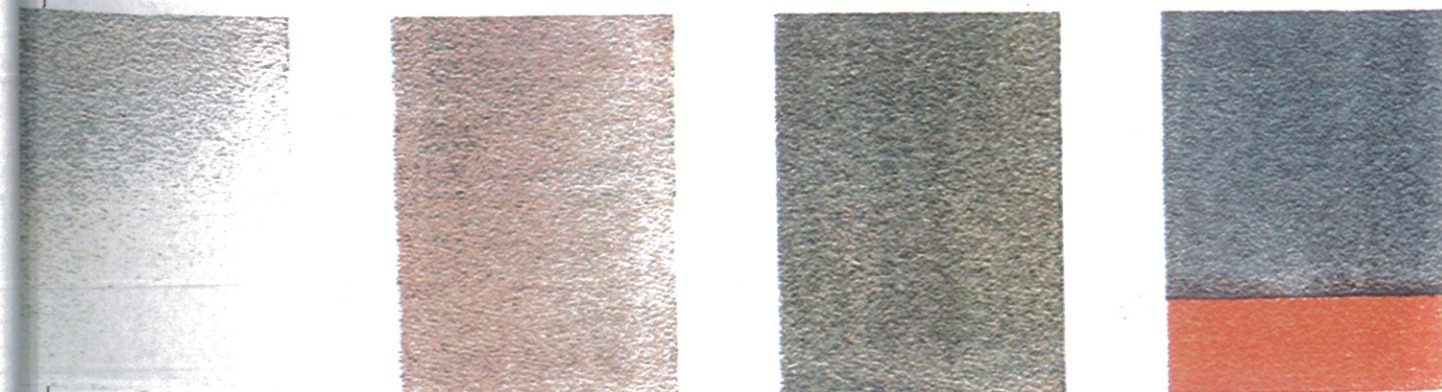
Aureolin, rose madder genuine, and cobalt blue can be mixed to produce a series of transparent neutral hues. Begin by combining all three primaries in equal amounts, and then, for variations in hue and intensity, alter the proportions. Grays made with these pigments have great transparency and luminosity. They can be used as glazes to create atmospheric effects or to modify underlying colors.



Mixing neutrals with the nonstaining triad.



Altering the triad proportions for variety.



Mixing neutrals with the opaque triad.

MIXING NEUTRALS WITH THE OPAQUE TRIAD

The three primaries of the opaque triad—yellow ochre, cerulean blue, and Indian red—are already somewhat neutral and therefore require little mixing to become totally gray. Neutral hues made with the opaque triad have a rich consistency that is especially useful in landscape painting.

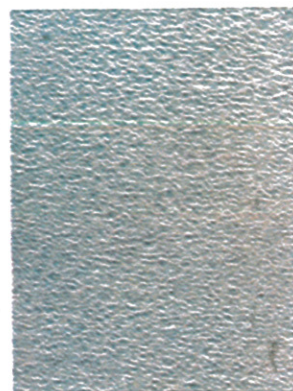
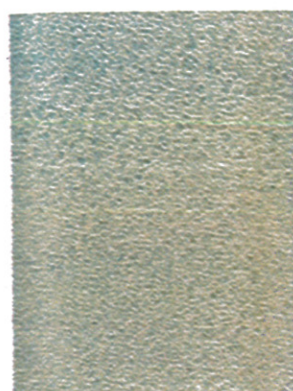
A large unrelieved area of neutral hue painted with opaque pigments can appear monotonous and muddy, but the opaque triad can be used in different ways to create subtle variations within a neutral hue. Interest

can be created through a slight gradation of the hue. A granulated effect can be achieved by gently rocking the board while the wash is still wet. More abrupt shifts in hue can be made to suggest the surface variations found in natural elements of the landscape.

MIXING NEUTRALS WITH THE STAINING TRIAD

Because each of the staining pigments actually stains the other, the staining primaries—Winsor yellow, Winsor red, and Winsor blue—can be easily mixed to gray. It is difficult to

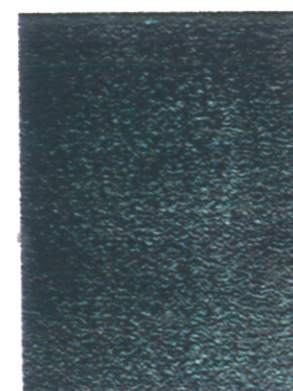
judge the value of neutral hues made with stains when they're wet because they dry lighter and less intense than when first applied. The staining triad can be used to make a variety of grays and neutral hues in the middle and middle-dark value range. Neutrals can be mixed with the staining triad that are similar to popular premixed colors: Payne's gray, sepia, and neutral tint, respectively. A large assortment of useful dark grays can also be produced by combining this triad with small amounts of other pigments from your palette.



Creating subtle variations of neutrals.



Mixing neutrals with the staining triad.



Making popular neutral colors with stains.



Fig. 23. The gabled brick-masonry buildings of Nybrogade were erected after the great fire in 1728.

The Great Fire of 1728

Copenhagen burned in 1728. The fire started on Vestergade, and a strong westerly wind saw to it that more than half of the buildings in the city were reduced to rubble²⁴.

Despite the devastation, the fire gave the city the opportunity to rebuild a more modern, less flammable city of tall buildings of solid brick construction, instead of half-timbered buildings connected with wooden fences. The city fathers decided to require that all buildings along the street be built of brick masonry; half-timbering was only allowed for rear buildings. The requirement for brick masonry was meant to prevent fire from spreading in the narrow streets, but it was also intended to set an aesthetic standard. The authorities wanted beautiful, uniform streets, and Johan Cornelius Krieger, court master builder, was asked to make calculations to demonstrate that building with brick masonry was not much more expensive than flammable, old-fashioned half-timbering.

BAROQUE AND ROCOCO